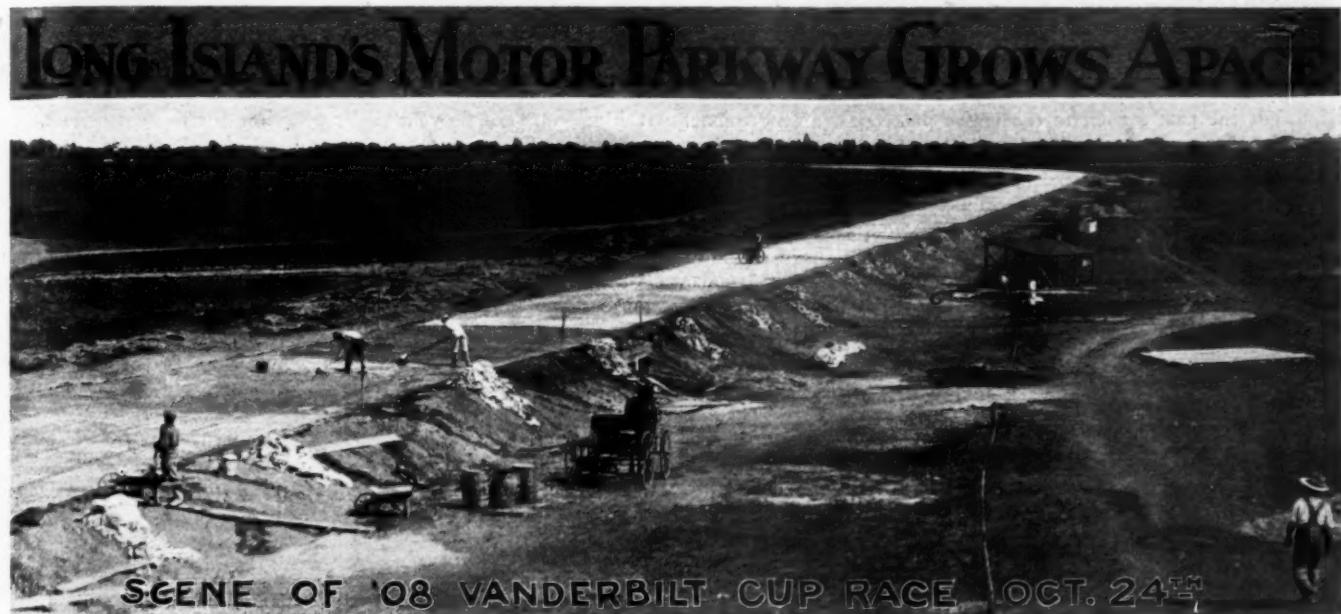


THE AUTOMOBILE



It is Nothing Short of Marvelous to Watch the Steady Progress in Building the Famous Motorway.

NEARLY 11 miles of the Long Island Motor Parkway will be available for the Vanderbilt Cup race of October 24, next, preceded by an American elimination trial scheduled for October 10. These 11 miles of perfect motor highway, fenced on both sides by heavy wire, will be supplemented by additional adjoining roads until a course of approximately 25 miles will have been secured for the great American derby of automobiling. Formal application for the use of the supplementary roads was favorably acted upon Monday last by the Board of Supervisors of Nassau county.

That the Nassauvians would welcome the running of the race once more over their highways was never for a moment in doubt. Their readiness to grant permission to use 14 miles of the county's magnificent highways in connection with the 11 miles of the Long Island Motor Parkway assured of completion in time for practice for the trials and the race was confirmed by the outcome of the public hearing at Mineola on Monday morning.

Practically no opposition whatever developed, and the Nassau County Supervisors gave their permission. The sole opposition developed centered in one objector, Charles G. Peters, of Westbury, who declared that the

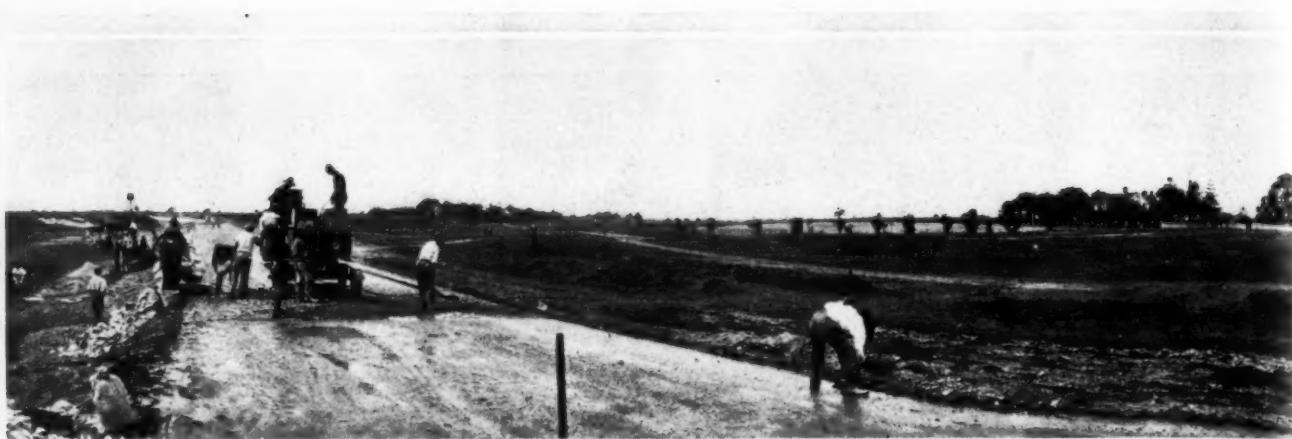
damage done by the racers of 1906 to the roads in front of his Meadow Brook estate had not been repaired and further complained of the violation of speed limits during the preliminary practice. The protests of Mr. Peters, however, were more than offset by the advocacy of the race by Charles Christman, of the Central Park Citizens Association, and the unanimous approval of the county land owners present at the hearing.

The formal permission was granted contingent upon the commission giving the county a bond for \$25,000, not to be released until all the roads used had been restored to their normal state of repair, which was promptly acceded to by the petitioners as a reasonable demand on the part of the authorities.

Most important, however, of the details of the promotion of the race was the announcement by A. R. Pardington, who made the application on behalf of the Vanderbilt Cup Commission as a member thereof, that 1,200 uniformed and armed men would be furnished to guard the course, in addition to the deputies furnished by the sheriff of Nassau county.

The policy and promise of the A.A.A. that it would not promote or sanction a race not properly policed was thus made good. This policy, be it remarked, has been endorsed at the big road races and hill-





That Stage of the Work Just Preceding the Top Dressing and the Steam Roller which Finishes the Surface.

climbs of the past season to the entire protection of the public. Mr. Pardington further offered to station flagmen at all crossings during practice and racing hours, and to make such other provisions as the safety of the contestants and citizens might demand. Incidentally, the supervisors decided to purchase two motorcycles fitted with speedometers to assist in the arrest and conviction of violators of speed limits on Nassau county roads.

Nor when considering the question of protection must it be forgotten that the 11 miles of the motor parkway, where the majority of the spectators will naturally congregate, will be guarded by a high fence on either side absolutely cutting off the public from access to the course.

More detailed information of the course, built and secured for the running of the race than was outlined in the formal petition to the Nassau county supervisors assures the fastest circuit ever prepared for an automobile road race. Over it an average speed of 70 miles an hour is possible. In fact, the speed limitations of the cars themselves would seem alone likely to measure the rate of going. It looks, in fact, this time to be a new world's long distance record for the mere trying, and a temptation that makers and owners of fast cars on both sides of the water will find hard to resist when they realize what is available.

The route presents few hills of any considerable grade. More than one-half of the circuit is down grade. The balance is practically dead level, and includes 11 miles of specially laid cement highway. The parkway section is dished and banked upon all turns with easy grades approaching public highway and railway crossings. The splendid county and State roads embraced in the course will admit of speed well nigh as great as on the parkway.

A mammoth steel stand ten times the size of former ones is to be erected by the parkway corporation on the south side of the cement stretch four miles from its beginning. It will afford

its occupants not only a bird's eye view for the entire 11 miles, but will enable them to see the racers at their highest speed on the easy "S" turns and as they negotiate grades at crossways.

In his enthusiasm A. R. Pardington thinks the parkway worthy of being dubbed "The Plateaux Racing Drome," and is sure the spectator will yearn for a gentle balloon flight of a few hundred feet that would give him a view of the entire race, so free is the course from hills of pronounced grade.

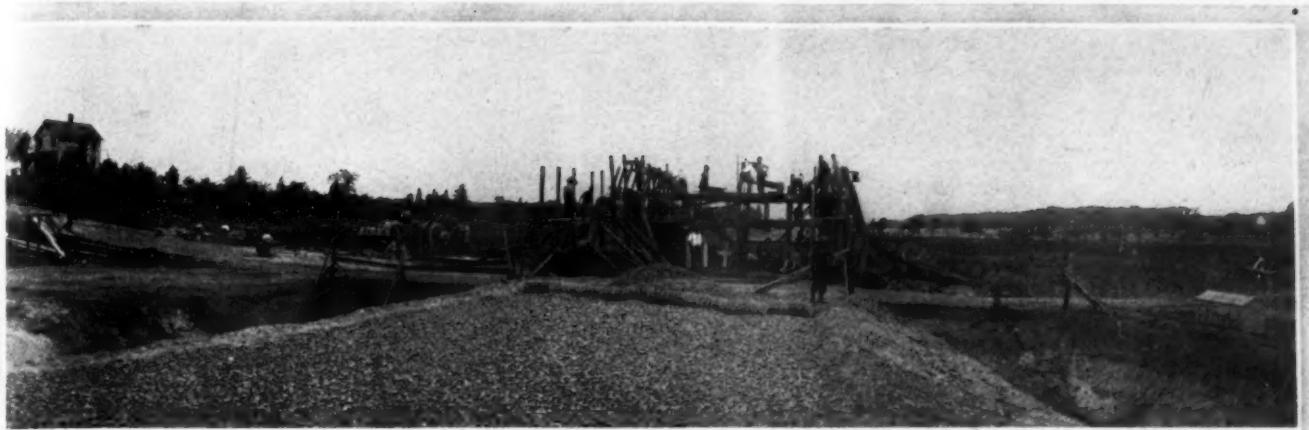
Beginning at the Jericho turnpike and the Old Westbury road, the racers will speed over Hempstead Plains with not a vestige of shrubbery or any woods to cut off the view. The parkway also runs through the same kind of open country, affording an unbroken vision. Leaving the parkway and entering the public road at Bethpage, the racers will encounter Manneto Hill, hardly of sufficient grade to be worthy of a name. Then will come the only stretch of road at all dangerous, and this by reason of the foliage of the Round Swamp and Plainview roads being thick and frequent turns admitting of but a short range of vision. There is ample shade from overhanging trees along the Jericho turnpike, but the road is very broad, permitting a view ahead of ample extent to insure safety in driving.

Along the parkway stretch there are two or three cement bridges, and one span to carry the road over intersecting roadways and low places. The center of the parkway, it may be interesting to note, is being built first to insure early completion and a firm bed. Later, however, the road will be widened six feet on either side.

To describe more particularly the circuit chosen, the boundary of the course is the well-known Jericho turnpike, beginning at the old Westbury road, about three miles east of Krug's corner and running 10 miles east to the intersection of the Woodbury and Hicksville macadam road.



The Parkway Winds Through Some of the Prettiest Farming Country on Long Island, Noted for Its Quiet Beauty.



Showing the Wooden Molds, Mixing Machines for Cement and Stone, and Wire Netting Which Goes Between.

The western boundary of the course is composed of a portion of the Old Westbury road running south from the Jericho turnpike to the Old Country road, and along the Old Country road about an eighth of a mile to Whaleneck avenue, thence south to the beginning of the Motor Parkway.

The southern boundary is made up entirely of the new cement parkway beginning at Whaleneck avenue, and paralleling an abandoned branch of the Long Island Railroad known as the Hempstead branch, for a distance of nearly 11 miles to a small settlement called Bethpage.

The eastern boundary of the course begins at the termination of the cement parkway at Bethpage and runs north along Round Swamp road to its intersection with the Plainview road and along that thoroughfare to its intersection with the Woodbury and Hicksville macadam road, along which it continues to the Jericho turnpike, where there is a sharp left turn known as the "Flatiron." From this turn the course practically coasts westward on Jericho turnpike for 10 miles back to the Old Westbury road and thence south to the beginning of the parkway.

There are eight sharp turns on the State and county road portions of the course, but the parkway turns are all beautifully rounded and banked. The surface of the cement is as smooth as a city concreted street, and the possibilities for high speed are quite enough to satisfy the ambition of the most daring racing drivers in the world.

General Manager Pardington, of the Parkway corporation, who has charge of its building, says that it will be completed in ample time for the American cars to practice for the elimination trials set for October 10 for a few days. The work is distributed among several contractors, each of whom has but a short section of road to complete. All of the crushed stone and cement necessary in the construction is upon the ground, together with

the steel netting, which forms the foundation for the cement roadbed. The wire fencing which is to run along both edges has been contracted for. This fencing is about five feet and composed of 10 parallel wires set close together and held in position by vertical wires about 12 inches apart.

The toll bridges will be completed in time for the race. One of them is located near the Meadow Brook Hunt clubhouse, a fashionable rendezvous for Long Island's elite colony.

The course for the 1908 race is much more isolated than those previously used for Vanderbilt Cup races, in that no part of it passes through a town or village where crowds would naturally congregate.

Frederick Skene, State Engineer and Surveyor of New York State, this week drove over the State roads which are to be used in connection with the cup course, and made some suggestions to Mr. Pardington as to the oiling of the State roads. Mr. Pardington agreed to carry out the State Engineer's suggestions, and at the same time pointed out to Mr. Skene one or two bad places, which Mr. Skene said he would have repaired at once, in order that oiling may be done in September.

Joe Tracy, the Vanderbilt cup driver who made the fastest lap in the 1906 races, has consented, together with two other well-known racing drivers, to make a speed test on the cement road surface of the Parkway within a few days. He will drive the Locomobile which he used in the 1906 Vanderbilt. The purpose of the test is to satisfy the Parkway engineers that their calculations on banking and dishing at curves, and on the approaches to viaducts over intersecting highways, are correct, not only in theory, but in actual practice. From the viewpoint of the autoist the test will be of considerable interest, as not only showing what speed will be possible on the cement straightaway, but also the effect of the cement on the tires.



When the Steam Roller Gets to Work It Soon Begins to Make the Parkway Such in Reality.



Completed Section of Parkway Showing Garford Car Making One of the Well-constructed Turns.

PROPOSED SPEEDWAY IN NORTHWEST.

TACOMA, WASH., Aug. 1.—According to present indications, an automobile speedway may shortly be constructed between this city and Seattle. A civil engineer employed by an Eastern automobile manufacturer has been looking over the proposed route and has recommended the investment of \$1,000,000 in the enterprise. The road would be built of shells, forming a surface which requires few repairs, and would be divided by a curb in the middle into two pathways for autos going in opposite directions. A small toll would be charged, and the constructing company would maintain garages at each end, where machines could be rented for the trip, which could be made in half an hour.

OKLAHOMA STATE BODY JOINS THE A. A. A.

Oklahoma automobilists have formed a State association of about 200 members, and at a meeting of the executive committee of the A. A. A., held Tuesday last at No. 437 Fifth avenue, New York City, the Oklahoma Automobile Association was admitted to membership as the twenty-fifth State body affiliated with the national organization.

Secretary F. H. Elliott's report showed that 24 new automobile clubs have been added to six of the State bodies during the past month. A long list of individual members, scattered through many States, was also placed on the membership roll.

President William H. Hotchkiss presided at the session, which disposed of a mass of routine matters, and made other plans for the association, which will be announced subsequently and prove of undoubted value to the association. One contemplated move, when it is made known, say the A. A. A. officials, will be received with particular favor and commendation throughout the entire country.

JERSEY CITY TO NEWARK HIGHWAY.

The Boards of Freeholders of Jersey City and Newark have authorized the construction of a broad highway connecting the two cities across the New Jersey "meadows," to replace the old Plank Road. This barren tract, it is believed, will soon be covered with manufacturing plants, and the new road will then become one of the greatest industrial centers in the country. The roadway will be of concrete, 100 feet wide, and will have a new bridge over the Passaic River. Engineers are now working on the plans, and it is hoped that actual construction work will be begun this winter. The estimated cost is close to \$1,000,000, of which Essex will pay five-eighth and Hudson three-eighths.

ST. PAUL CLUB IMPROVES ROADS.

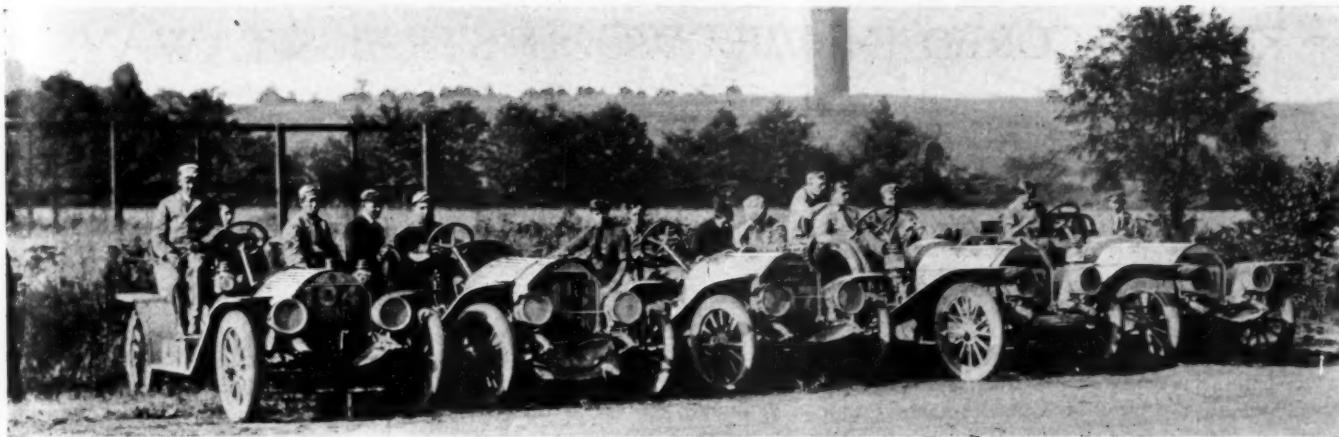
ST. PAUL, MINN., July 31.—The Automobile Club of St. Paul has decided to spend the \$6,000 which it cleared at the race meet July 15 on improving the roads of this vicinity. Two wagons, manned each by a crew of laborers and a foreman, will be put in commission for the rest of the summer and travel over all the macadam roads around the city, repairing all inequalities.

MORE ARRIVALS BY AUTO THAN TRAIN.

BRETTON Woods, N. H., Aug. 2.—The two big hotels at Bretton Woods, the Mount Washington and the Mount Pleasant, are receiving more guests who come by automobile than by train. Since July 15 there have been 555 arrivals by auto and only 373 by train. In the garage 123 cars have already been accommodated, many from distant points. With the building of new roads in the White Mountains automobile travel is becoming the preferred method of transportation in reaching this region.



Once More the Jericho Turnpike is to Be Included in the Famous Vanderbilt Cup Course.



Line-up of the Five Tied Hower Trophy Candidates: Premier, Two Stoddard-Daytons and Two Pierce Great-Arrows.

RUNABOUT TIE RUN-OFF MAKES A PIERCE WINNER

BEDFORD SPRINGS, Pa., July 30.—Of the five runabouts which left Saratoga last Saturday to decide the tie for the Hower trophy, three dropped out at Pittsburg, and the remaining two ended their long trip here yesterday. They were the two six-cylinder Great Arrow Pierces, Nos. 100 and 103, driven by J. S. Williams and Ed. Rettling; the two four-cylinder Stoddard-Daytons, Nos. 107 and 112, driven by G. P. Moore and R. C. Shirk, and George Weidely's, No. 104, four-cylinder Premier. On arrival here only the Pierces were left, and, rather than draw things out indefinitely, R. D. Garden's, No. 100, Great Arrow roadster was withdrawn, leaving Charles R. Clifton's entry the winner. The conclusion of what was generally anticipated to be a long and closely contested run-off came much sooner than expected, the perfect score of the Premier, which had been maintained for the first three days of the run, going by the board on the stretch between Pittsburg and Cambridge

Springs on Tuesday, where the car broke its front axle through dropping into a washout. Weidely fixed it and reached Pittsburg in good shape, but was out of the running, of course.

This left the two Pierces and the pair of Stoddard-Daytons, and it looked as if the contest would be continued by these four, but at a meeting of the contestants it was decided to withdraw the Dayton roadsters. The reason for this lay in the fact that the two cars are the property of individual owners, over whom the factory had no control prior to the run-off, and it was in accordance with their wishes that the cars were withdrawn. This eliminated all but the Great Arrow contenders, and the withdrawal of R. D. Garden's entry left Charles R. Clifton's Pierce roadster the winner of the Hower trophy, thus putting an end to Dai Lewis' work in the perfect score two-cylinder Reo of R. M. Owen, which has been acting as a confetti car for the Fifth Annual A. A. A. Reliability Tour.

VICTORIOUS THOMAS RECEIVES AN OVATION IN PARIS

PARIS, July 30.—Nothing could stand out in sharper contrast than the reception accorded the winning Thomas car on its entry into the French capital and that which the Germans received a few days previous. "Vive le voiture Américain!" was the popular cry of the day that greeted the triumphant American crew all the way from Meaux, 25 miles out of the city, where a large escort of cars met them, until they arrived in front of the *Matin* office. When, at eight in the evening, the Thomas, with the Stars and Stripes floating out behind, made its way to the Place de l'Opéra, the enthusiasm was unbounded. In front of the Café de la Paix, a gendarme stopped the car and placed Schuster under arrest for not having a light. Protests and explanations were unavailing. A cyclist offered the lamp from his machine, but it could not be detached, so the bicycle was lifted in the car.

At the *Matin* offices an informal reception was tendered George Schuster, George Miller, Captain Hans Hansen, and George McAdam, staff correspondent of the *New York Times*.

Schuster has suffered severely from the strain of the trip, and would not repeat the experience for any consideration, but he is the happiest man in Paris to-day. "We started from New York February 12, and here we are," he said, when interviewed. "It has been a wonderful journey, but it has been extremely hard, and if it had not been for the life in the open, probably none of us would have been able to stand the hardships. Siberia is certainly no place for the automobile, but it's all over now. We have won, and we are perfectly happy."

NEW YORK, Aug. 3.—Upon receipt of cable advices that the Thomas had reached Paris a winner in the round-the-world race by the ample margin of 26 days, Harry S. Houpt and John Elliott Bowles, who were greatly responsible for the entry of the Thomas car, were the recipients of general congratulations from American automobilists, many of whom declared the trip was the most remarkable evidence of American perseverance and grit and the most conclusive demonstration of the ability of the modern automobile that could be afforded. There is a plan afoot to tender the winning crew a reception on their return here, in order to give the men an opportunity of telling of some of their experiences at first hand to those who have followed their adventures through the columns of the newspapers.

When interviewed at Buffalo after learning of the arrival of the Thomas at Paris, E. R. Thomas said: "In the New York to Paris race, not only an American car, but also American tires scored an important triumph, the Diamond quick-detachable tires used giving excellent service. While the Thomas stock car won the race round the world, covering a distance of 13,431 miles by the comfortable margin of 26 days, it is particularly gratifying to me to know that the car was the only one which went the official route. The Thomas traveled 2,385 miles more on land under its own power, and 3,246 miles more at sea—a total of 5,031 miles more—than its nearest competitor, which shipped from Pocatello, Idaho, to Seattle, thus avoiding the severest portion of the trip across the American continent."

KNOX SCORED IN WILDWOOD STRAIGHTAWAYS

WILDWOOD, N. J., Aug. 3.—The Knox collared everything in sight to-day in the classes to which it was eligible, the Buick getting away with the small car classes and the Stanley having a clear field in the steam events. Between them, Bourgue and Dennison captured seven races with their twin Knoxes, including the free-for-all, in which each won a heat, and in which Bourgue finished second to Dennison. The Knoxes also ran one, two in the mile and kilometer time trials, Dennison beating out his confrère in both in the fastest times of the day: 47 2-5 and :28, respectively. The Stanley was the place car in both trial heats of the free-for-all, but in the final the flying back of the hood of Vennell's car, which had been imperfectly fastened, put its driver temporarily *hors de combat* and rendered necessary the services of a physician to sew up the resulting cut in his head.

The races were not nearly so interesting as those of last Fourth of July, Saturday's rain resulting in the scratching of many entries. The chapter of mishaps, which began with the accident to Swain and Overpeck on Thursday, was continued this morning, when "Dick" Sellers, chairman of the contest committee of the Quaker City Motor Club, had his right shoulder dislocated by being catapulted from the Pennsylvania Vanderbilt car, driven by Richard Williams. While speeding back toward the start the top of the battery box fell into the open machinery and blocked the brake clutch. The choice lay between a dash into the ocean and a sharp turn up a cross street. Williams preferred the latter, and the car turned a complete flip-flop. Seller's dislocation was reduced by a local surgeon. Williams got off with a few scratches.

The course was fast, and, considering the horsepower of the contestants, the times made compared favorably with the :42 3-5 record on the Fourth of July. Following is the summary:

MILE TIME TRIALS, OPEN TO ALL.

1. Knox	A. Dennison	:47 2-5
2. Knox	Wm. Bourgue	:48 4-5
3. Parkin	J. W. Parkin, Jr.	:50 2-5
4. Sharp-Arrow	W. H. Sharp, Jr.	:53
5. Buick	Ed. Wilkie	:1:08

KILOMETER TIME TRIALS, OPEN TO ALL.

1. Knox	A. Dennison	:28
2. Knox	Wm. Bourgue	:29 1-5
3. Parkin	J. W. Parkin, Jr.	:30
4. Stanley	D. Walter Harper	:31 3-5
5. Buick	Ed. Wilkie	:41

FREE-FOR-ALL.

(First Heat.)

1. Knox	Wm. Bourgue	:49 4-5
2. Stanley	D. Walter Harper	:50

(Second Heat.)

1. Knox	A. Dennison	:50
2. Stanley	Walter Vennell	:53

(Final Heat.)

1. Knox	A. Dennison	:50
2. Knox	Wm. Bourgue	:50 4-5

FREE-FOR-ALL FOR STEAM CARS.

1. Stanley	D. Walter Harper	No Time Taken
2. Stanley	Walter Vennell	"

GASOLINE STOCK CARS UNDER \$1,250.

1. Buick	Ed. Wilkie	:1:22
2. Middleby	Wm. Smith	:1:22 2-5

GASOLINE STOCK CARS, \$1,251 TO \$2,000.

1. Buick	Ed. Wilkie	:1:19
2. Middleby	Wm. Smith	:1:19 2-3

GASOLINE STOCK CARS, \$2,001 TO \$3,000.

1. Knox	Wm. Bourgue	:54 2-5
2. Sharp-Arrow	W. H. Sharp, Jr.	:55 2-5

GASOLINE STOCK CARS, \$3,001 TO \$4,000.

1. Knox	Wm. Bourgue	:50 4-5
2. Parkin	J. W. Parkin	:51 2-5

FOUR-CYLINDER GASOLINE STOCK CARS OVER \$4,000.

1. Knox	Wm. Bourgue	:54 2-5
2. Stearns	H. A. McNichol	:56

SIX-CYLINDER GASOLINE CARS.

1. Knox	Wm. Bourgue	:50 4-5
2. Parkin	J. W. Parkin, Jr.	:51 2-5

WILDWOOD, N. J., Aug. 1.—Bad weather and luck have marked the midsummer meet of the Motor Club of Wildwood up to date. The climax came when the officials, after a thorough trial of the Central avenue boulevard course, reluctantly postponed the races scheduled for this afternoon until Monday.

Speeding along the country road between Hammonton and Egg Harbor late Thursday night, ex-President "Charlie" Swain and "Doc" Overpeck, prominent in the Quaker City Motor Club, met with a serious accident, which not only necessitated their removal to the German Hospital in Philadelphia, but spoiled the invitation run from Philadelphia to Wildwood, of which the injured men were to have been the finish judges. Just before reaching Elwood, Swain's Apperson "Jack Rabbit," with Overpeck at the wheel, came suddenly upon a buggy without a lamp, and in his effort to clear it the "Rabbit" struck a muddy spot, skidded into and across the ditch, finally bringing up against a tree and turning turtle. Both men were caught beneath the car, and, with no help near, Swain, with several fractured ribs, managed by almost superhuman efforts to work his way out and drag Overpeck to the roadside. About daybreak Swain went to summon help, and with the aid of a farmer's wagon conveyed Overpeck to DaCosta, where a train from Atlantic City was stopped and the injured taken to Philadelphia.

The news of the accident cast a damper on the invitation run, which, however, was run off as per schedule, and was won by Paul P. Huyette, who drove his 35-horsepower Peerless over the course in the exact time previously agreed upon by the committee, arriving here at 5:15 o'clock in the afternoon.

Threatening weather and the accident combined rendered necessary the postponement of the meeting of protest against the Frelinghuysen law, originally scheduled for Friday night, until to-night. Five hundred enthusiasts, however, were on hand when Chairman Thomas Martindale called the meeting to order. After a comprehensive statement of the present conditions by the chairman, the following resolution was introduced by Carl A. Haswin:

Resolved, That we pledge our united efforts to secure just legislation as well as to remove this oppression and persecution, and be it further

Resolved, That, failing in any other way to obtain the relief which we so much need, we will use our influence to secure the election to the next Legislature of men who will pledge themselves to support what we believe to be just and merited legislative measures affecting motorists, and be it further

Resolved, That we appeal to the press of New Jersey and Pennsylvania to support the motorists in their movement to obtain for themselves a square deal from the Legislature of New Jersey.

In seconding the resolutions Senator J. Thompson Baker took occasion to characterize the present automobile laws of New Jersey as "a disgrace to the fair name of an illustrious commonwealth." Secretary Edwin S. Nyce, of the Norristown (Pa) Automobile Club proposed that all manufacturers of automobiles and accessories in New Jersey be asked to financially assist in fighting the present law. The proposition was favorably received, after which many present, including the winner of yesterday's run, Paul B. Huyette, detailed their experiences with the present law. He said he had been arrested but once—in New Jersey.

ANOTHER FRENCH COMMERCIAL VEHICLE TEST.

PARIS, Aug. 1.—France is to have another commercial vehicle competition this year, the special type of automobile provided for in the recently announced contest being light delivery wagons, taxicabs, and hotel and railroad omnibuses. The competition was originally announced early in the year by two Parisian journals, but on the request of the Automobile Club of France, which had its own trials in view, was indefinitely postponed. The date has now been fixed for the month of October, the exact date and conditions to be announced later.



Ferber Aeroplane Making One of its Successful Trial Flights at Issy-les-Moulineaux, Near Paris.

FERBER AFTER DELAYED HONORS.

PARIS, July 30.—Captain Ferber, the French aeronautical army officer who put both Delagrange and Henry Farman on the road to success in the matter of aerial flight, has just brought forth his own flying machine. The apparatus, which made its first public appearance at Issy-les-Moulineaux last week, was first built in 1904. Various difficulties prevented it being brought before the public, and in the meantime Farman and Delagrange became interested and had similar models constructed, with success so familiar to all the world. In November, 1906, Ferber's machine was lying at Chalais-Meudon waiting for suitable weather for a flight, when orders came from the military authorities that the ill-fated dirigible *Patrie* was en route and room must be found for it in the shed. The Ferber aeroplane was consequently turned out of doors, to perish miserably a few days later in a violent storm.

Annoyed at the loss of his apparatus, Captain Ferber asked to be put on half pay, and since then has been privately at work on various aeronautical devices. The machine which came forth this week is the reconstructed No. 8 lost in the November storm of two years ago and in general lines is similar to the now familiar Farman and Delagrange flyers. The raising and lowering rudder is in front, a horizontal and vertical rudder is carried at the rear, and at each extremity of the main plane is a jib to facilitate turning. The motive power is a 50-horsepower eight-cylinder Antoinette engine driving a two-bladed propeller forward. The pilot sits behind his engine on a swinging seat composed of two leather straps. After the preliminary trip to test the various parts, the captain will commence a series of flights in which he hopes to beat his younger rivals.

The most noticeable difference between the Ferber and the Farman machines is in the location of the engine and propeller. Ferber's engine carries the propeller on the front end; Farman's, on the rear, this seeming a much more natural arrangement.



Captain Ferber, Originator of the Farman Type of Aeroplane.

FARMAN DOES SUCCESSFUL FLIGHTS.

After some quick work in setting up and tuning his aeroplane, Aviator Henry Farman made his first flight in this country Friday, July 31, before the members of the Aero Club of America and a number of pressmen. The field of the Brighton Beach racetrack was not in the best of condition, several gullies having been roughly boarded over and a pile of lumber having been left in one corner. The wind currents, too, were very irregular. In spite of these drawbacks Farman made two flights of several hundred yards each diagonally across the field, at a height of about fifteen feet. The third flight he made to oblige a disappointed photographer, and many thought it the prettiest of all. He simply started the engine and the machine jumped into the air, with only a few yards preliminary run.

A large crowd turned out Saturday to see him fly, but were disappointed. The wind was blowing half a gale, and, although the aviator waited until sunset, it did not go down sufficiently to make any attempts advisable. Sunday conditions were better, although by no means ideal, and the aviator again made several flights diagonally across the grounds. The next day he increased the distance; after flying about 300 yards straightaway he swung the machine around in a large arc toward the stands, covering altogether about 800 yards. In another flight he attained a height of about 30 feet, and came down smoothly and without a hitch. The perfect control Farman had over the aeroplane was noticeable on all occasions.

By way of description it may be said that the machine is 32 feet across the wings and about the same length from the front balancing plane to the tip of the tail. The aviator sits at the junction of the wings and tail, and controls the direction and elevation by a steering wheel. Just behind him is the motor, an eight-cylinder, 50-horsepower Antoinette, with a two-bladed propeller mounted directly on the rear end of the crankshaft so as to enable it to exert its force directly backward.



Henry Farman Alongside His Aeroplane at Brighton Beach.

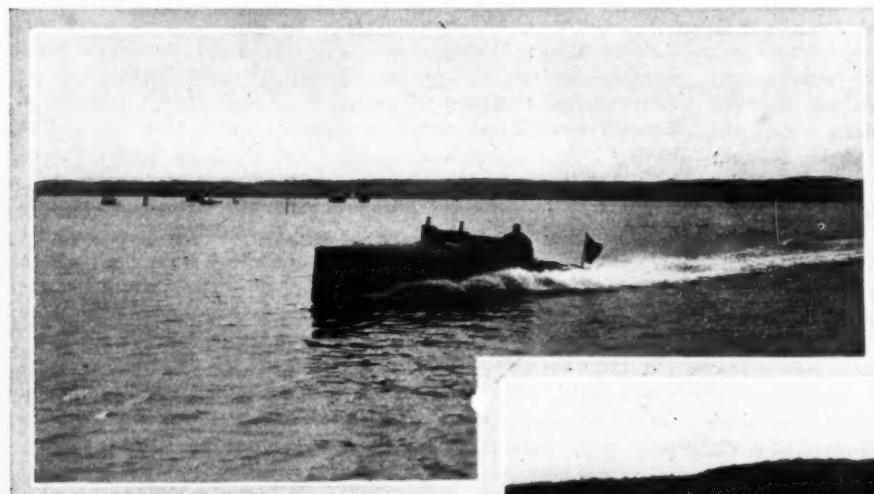
AMERICA AGAIN WINS HARMSWORTH TROPHY

IN a closely contested and exciting race in Huntington Bay, L. I., Monday, August 3, the *Dixie II.* beat the English challenger, *Wolseley-Siddeley*, and won the right to keep for another year the British international motorboat cup, usually known as the Harmsworth trophy, and open to all comers.

Five boats started in the race: the *Wolseley-Siddeley*, owned by the Duke of Westminster and captained by Noel M. Robbins; the *Daimler II.*, of Lord Howard de Walden, another challenger; E. J. Schroeder's *Dixie II.*, Capt. S. B. Pearce; Capt. John Sheppard's *U. S. A.*, formerly the *Irene*; and the little *Den*, entered by Commodore Joseph H. Hoadley, of the Motorboat Club of America. The course was triangular, running out to a

complete the first lap. The *Dixie* passed the stake boat 37 seconds ahead of the *Wolseley*, and Engineer Rappuhn signaled that the wheel was turning only 750 revolutions a minute, 150 short of its maximum, showing that she had a good reserve.

On the second lap the *Wolseley* did her best work, and gained 21 seconds. Coming down the last leg Captain Robbins held straight to his course and flashed past the stake boat in a cloud of white spray, with only a few feet to spare. But before the first mark out in the sound was reached the *Dixie* was again increasing her lead, and try as the English boat would the gap between them grew larger. As the *Dixie* came down to the finish she seemed to be steering a trifle wild, and then the watchers could see that Captain Pearce was dashing water upon his mechanic with one hand while he held the tiller with the other. She crossed the line 49 seconds in the lead. A number of small boats with doctors on board immediately put off to her, and it was found that Engineer Rappuhn had been overcome by breathing the exhaust gases from the engine. A moment later Captain Pearce toppled over also, but both revived when carried ashore, and suffered no ill effects. The trouble was due to the position of the muffler, which had been hastily in-



"Dixie II," the New Cup Winner.

stake boat in the sound beyond Eaton's Neck, then west along shore to a mark off Lloyd's Neck, and then back to the starting line in Huntington Bay; it was circled three times, making thirty nautical miles in all. The *Dixie's* official elapsed time was 1:04:57, to the *Wolseley's* 1:05:46; the averages figure out at 27.75 and 27.35 knots an hour, respectively.

Instead of the forty-mile norther that caused the postponement on Saturday, a light easterly breeze was blowing across the bay, just strong enough to raise a few whitecaps; the water was a blue as deep and clear as that along the Riviera, flashing in the bright sunlight. All the terraces and the bluffs around the harbor were crowded with spectators. At 2:30 o'clock, the time set for the start, all the racers were under way and moving about waiting for the signal. At 3 o'clock the signal whistle finally blew. Captain Pearce, of the *Dixie*, took up a position just behind the line, and when the starting signal was given he jumped the boat ahead and got across just 14 seconds later. The *Den* made a quick start and was next over, closely followed by the *Daimler* and the *Siddeley*; the *U. S. A.* was late, owing to a slight accident. Two minutes after the gun the racers were far out in the bay, and could only be distinguished by the waves they threw up. At the first stake the *Dixie* had kept her lead, but the two English boats had passed the *Den* and were close behind. On the westerly leg the *Daimler* showed good form and gained about three lengths on her sister boat, but soon after rounding the buoy a piston in the starboard engine seized and she failed to



The "Wolseley-Siddeley," Which Finished Second by 49 Seconds.

stalled just before the race. Captain Robbins, of the crack British boat, took his defeat philosophically, and admitted that the best boat won. Summary:

Boat.	Elapsed Time.	Knots per hour.	Miles per hour.
Dixie II.....	1:04:57	27.75	32.00
Wolseley-Siddeley	1:05:46	27.35	31.05
U. S. A.....	1:15:11	23.90	27.65
Den.....	1:20:47	22.50	25.65
Daimler II.....	Disabled.		

Ex-Commodore E. J. Schroeder, of the Motorboat Club of America, won the trophy last year with the *Dixie I.* When he received the English challenge this year he commissioned Clinton H. Crane to make him a new boat. Crane and Whitman built the motors, and Frank Woods the hull. The *Dixie II.* is 49 feet 6 inches long, and her engines develop 200 horsepower. In a mile speed trial over a measured course the day after the race, the *Dixie II.* made a speed of 36.4 nautical miles per hour, which shows how much better she could have done, if pushed.

CARS FOR PASSENGER USE IN AND ABOUT CITIES

THERE is a very close line of demarcation, as yet barely recognized, between the vehicle popularly known as the taxicab and the town car. At the same time full appreciation is given the fact that certain manufacturers advertise their goods simultaneously as taxicabs and town cars, and undoubtedly they themselves are versed in the existence of the difference between types which they would familiarize as synonymous. It is equally certain, though, that there are very many individual concerns in the industry, to say nothing of laymen, who have no real

items of the make-up must be proportionately restricted unless internal sacrifices of space are made. Hence, wheelbase is the determining point of a taxicab design, nor does any specified form of steering help to release its control of the situation inasmuch as the maximum angles of steering wheels are defined by inflexible dynamic considerations.

What May Be Deemed Essential in the Town Car.

Follow now the case of the town car and its requirements. What is the first desideratum? Undoubtedly capacious comfort, or comfort and capacity equal to that of the vehicle in the place of which it substitutes itself—the private brougham. No governmental restrictions are incidental to the use of a town car, hence there are no wheelbase dimensions which cannot be exceeded at the discretion of the designer. Above all, the town car is a carriage, and as a carriage it is the luxurious prerequisite of a class of people having educated discrimination between the seemly and the unseemly in the art of outline—the limitation of service and the taste of their possession in a vehicle that must be designed as much for one as the other.

These things it is eminently essential

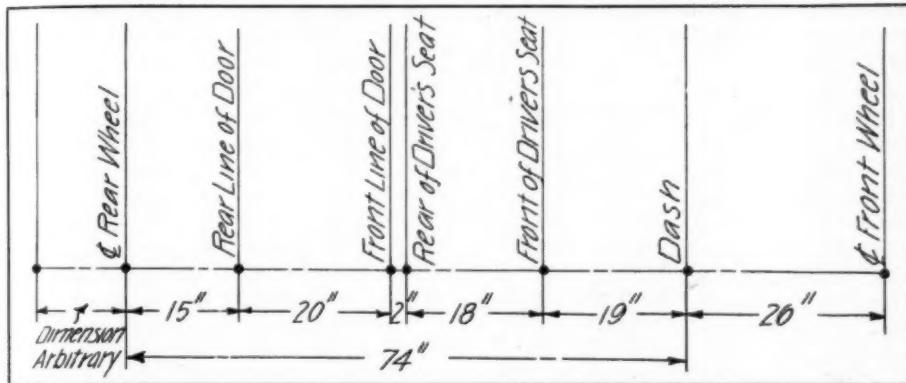


Fig. 1.—Showing a permissible wheelbase of 100 inches in the layout of a cab chassis.

conception of the differences demanded by circumstances and by service from vehicles that ply for hire within a city and its environs and a private carriage for use in the same neighborhood. Probably a tabulation of the differentiated requirements will be the best means of bringing the conditions forcibly to the mind of the reader. Scanning such a tabulation we find:

REQUIREMENTS OF THE TAXICAB.

1. It must be eminently serviceable and in lieu of absolute reliability must be easy of immediate repair.
2. It must comply with police regulations regarding turning radius.
3. Of reasonable comfort and capacity; appearances are secondary to certain other considerations.
4. Its internal operations must be entirely automatic to avoid trouble with unskilled treatment.

FEATURES OF A STANDARD TOWN CAR.

1. While reliability is essential, means for rapid handling of repair are hardly as important.
2. There are no police regulations on its construction or performance.
3. Maximum comfort for rated capacity is absolutely essential.
4. Appearances are everything.
5. Its cost is comparatively immaterial.
6. Better treatment can be counted on.

Thus the designer is confronted with two entirely different problems—the one calling for serviceability above all things and the other for extreme luxury under all conditions. It is, of course, rash to aver that the two cannot go hand-in-hand, but it is not injudicious to state definitely that the requirements of a town car de luxe cannot be satisfied by the dimensions which have been relegated to the taxicab for hacking service.

Examine the limiting factors in both cases. The regulations of the administration call for the vehicle plying for hire turning within a fixed radius of such small dimensions that wheelbase is especially restricted. Wheelbase being restricted, each and every one of the

that the would-be producer of town carriages should remember, for, bearing them in mind, he must necessarily commence the laying of his design upon foundations which will appeal to his mechanically educated senses as more than premature. In other words, he must start with the carriage and duly build his propulsive mechanism about it—a truly revolutionary suggestion to the motor car designer, though less startling at the present time than some two or three years ago.

Head room and leg room, door space and floor height, seat location and cushion bulge—all these things have been developed by many generations of carriage builders, and if so why seek further for information? Ask any of the first-class carriage builders whose names are household words in the class whose trade you are after what they consider the ideal design for a brougham, a coupé, a victoria, or whatever you desire to build. Let them define what they, with years of experience of a trade into which you are about to break, would consider the perfect vehicle—a *chef d'œuvre*—and from the results of decades of cut-and-dried methods that will be so unobtrusively correct in these details of dimension so difficult to develop or steal that there is no need to seek further or waste another decade in research work after that which is already so well known as to be standard.

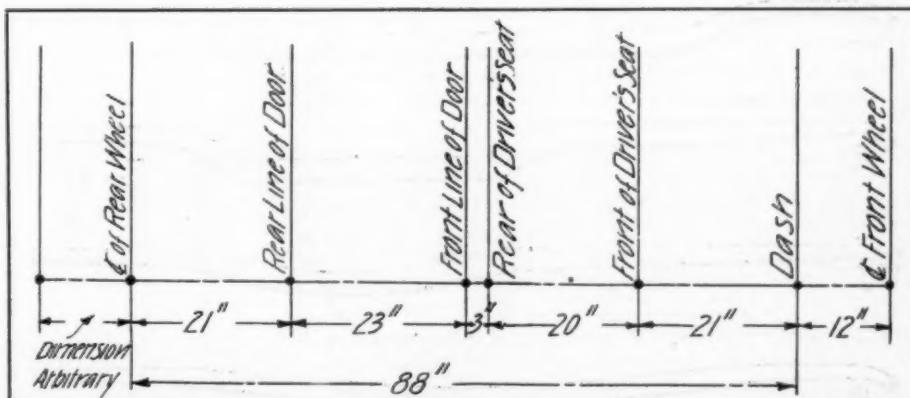


Fig. 2.—Morris chair effect given to driver's portion of body built on century wheelbase plan.

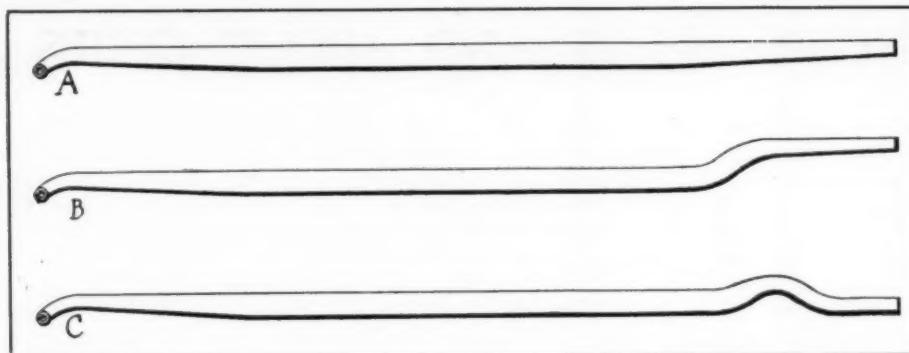


Fig. 3.—Showing three types of frame design applicable, each having specific uses.

Chassis Should Meet the Requirements of Body.

Mark well in this, that the way to secure such data is not to supply a chassis and demand a perfect body built to it. Such a procedure will only call forth much unnecessary exercise of ingenuity upon the part of the carriage designer who will do his best and at that produce work unsatisfactory to himself. Secure as a starting point the ideal lines by a master of the approach to perfection in the passenger section of the vehicle; forget the driver, the driver's companion, luggage accommodation, accessory attachments—be oblivious of all these disturbing elements—and then, having secured the nucleus—the pearl of desire—commence to construct about it, by synthesis as it were, the oyster necessary to bring its being in the shape of a suitable chassis.

The critic may aver: "This is only an assertion; how can I be expected to work a chassis around a carriage builder's job? Why, if they had their way," etc. Too frequently the carriage builder, left to his own devices to avoid some crook of design, for which he is not responsible, perpetrates abominations; but left to his trade the carriage designer has a respect for purity of line, complementary angles and supplementary curves, mingled with an honor for re'entrant tendencies that invariably eventuates in a simple beauty rarely noticed where his work is curbed by lines created and abhorrences forced upon him by unbending circumstances.

Where the Town Car Differs from the Taxicab.

And having secured the ideal for the part that matters—the carriage—it is really quite easy to do the rest. "Quite easy," is said advisedly, for it must be so relatively speaking, when one considers the extraordinary amount of ingenuity misplaced in getting around things to use some idea or other which is really not worth while anyway and certainly not vitally important as is the carriage arrangement of the vehicle, the alpha and omega of whose purpose is that of a town carriage, whose very acquirement indicates a desire for luxury.

Possibly the difference in the manufacture of the town car

and the taxicab may be described by indicating the difference in the buyers of each. It is mind and matter respectively. Ten to one the town car customer is appealed to by the style, the taste, the color, some fittings—by detail only; in other words by a chimera. Is it not a matter of record in 90 per cent. of the cases the women swing the sales? Not so with the taxicab buyer. In vulgar parlance, "he's from Missouri," and when he takes his demonstration he's not very anxious as to the taste of the make-up. What he wants to find is value, not toilet glasses. It's dollars present and dollars prospective with him, proverbial tinker's curse for the art of the thing. What he wants is results. So does the buyer of the carriage; but he likes a lot of art on the side as well.

Elements which are essential to a good town car are almost undesirable in a taxicab. Thus, comfort for capacity is a *sine qua non* with the town car, but tends to overloading with a taxicab. And, although a taxicab should be sufficiently roomy, the fact that it is included in the class of vehicles that ply for hire renders it equally liable to the shopping tour of "miladi" at noon and the rowdy pack at midnight, the last mentioned fare being apt to be weighty and undesirable from more points of view than just its own discomfort.

Hence the existence of the line of demarcation, already spoken of, will be generally acknowledged by those who will consider the matter, and therefore it is meet to proceed to dissect differences to the point of diversity of practice, for with vehicles differing so widely the mechanical practice must of necessity vary to a certain degree. In the first place, the town car must obviously be the more powerful, for, with greater wheelbase and more commodious body work, its weight calls for a higher engine capacity. Also, since there is a possibility that the chassis work may have to adapt itself to the body work, rather than vice versa, some specialized constructional scheme may be necessary that is not involved in the taxicab layout. These are all considerations that must be taken into account in the design of these small vehicles for urban service, whether of a public or private nature and particularly in the latter case.

Clearance of Taxicabs an Important Consideration.

Next comes the all-important mention of road clearance, a question the solution of which is attended by no mean difficulty, inasmuch as it should be low—close lying to the road surface, the vehicle for town use has yet to contend with conditions from time to time which demand that it shall be possessed of ample clearance. This difficulty presents itself and, insidiously tardy in the forcefulness of its realization, is a real nightmare to the designer, who finds himself faced at every turn by troubles directly traceable to the necessity of this clearance. Thus a straight line drive is not only desirable but well-nigh essential for a chassis to operate efficiently and continuously without either undue power loss or extraordinary wear. Also, it is injudicious for obvious consideration to raise the frame of a city vehicle further than 25 inches from the road surface, this dimension being arbitrary irrespective of wheel diameter.

Considering 34-inch wheels as the maximum size likely to find favor in the eyes of the designer and producer, and a straight line drive parallel with the line of the frame, it will be obvious that the clearance with a normal flywheel is somewhat low. What alternatives

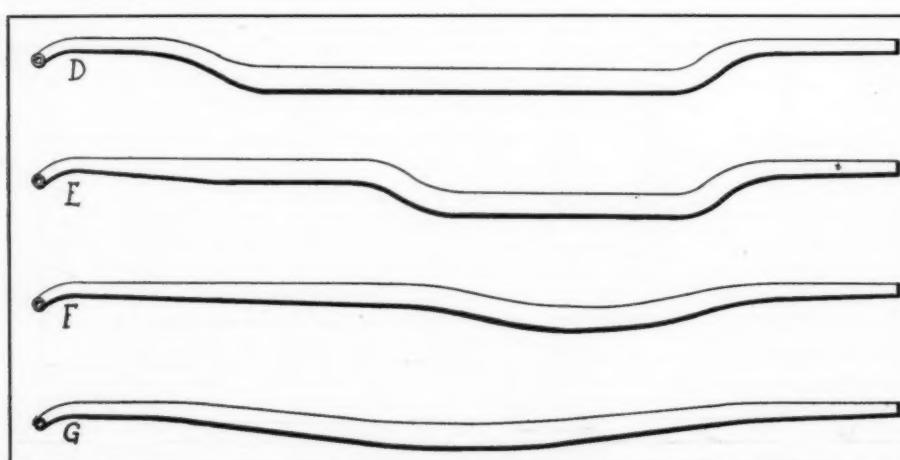


Fig. 4.—Four varied types of double drop frame design, showing the possibilities.

present themselves? The engine may be raised at the expense of angularity being introduced in the propeller shaft; an inclination may be given to the engine to correspond with an inclination of the driving axis sufficient to provide the clearance beneath the flywheel, this being one of the most important problems of the design.

Some Characteristics of the Main Chassis Types.

Figure 7 shows an arrangement entirely conventional, very common and as reprehensible as frequent. So much has been written upon the loss of power in transmission through universal joints that the writer feels it unnecessary to emphasize the undesirability of such an arrangement. Figure 6, depicting the inclination of the whole driving axis, is excellent in many ways, has many ramifications which we will look into later, and, provided certain conditions are not complied with, remains by far the most generally satisfactory way out of the trouble. The last solution is, to the writer's mind, the best of any, but of this more later, as there are coincident reasons which will appear later in this monograph. Regarding ramifications of the inclination system of providing a sufficiency of clearance there are two which are deserving of close attention, namely, that used respectively by the Rover company in England and the Nordyke & Marmon company in this country.

Fig. 7 will make this modification clear and its commendable points are not few. Fig. 7 illustrates the direct adaptation of the inclined drive to a construction such as shown in Fig. 6. This latter is probably the better for all-round work and for manufacturing purposes. In either case the clearance beneath the flywheel is easily modified to suit any limiting conditions existing, so the real issue is to investigate the influence of the inclination to the functions of the motor. The only difficulty lies in the problem of the lubrication, and in the selection of a lubrication plan which is independent of the inclination of the crankchamber. With a single-cylinder motor almost any system would be satisfactory; with a multi-cylinder engine it will be evident that the auxiliary splash system—so often the only system—is almost out of the question, inasmuch as the rear cylinder would normally be in a state of oil flood while the forward ones starved, causing the motor to seize.

It may be argued that individual compartments to the crankchamber would supply the want. With an overflow system in conjunction with a pump feed it might do, but from the point of view of economics results against installation expense. A complete force feed system is preferable, making the motor entirely independent of position under any conditions.

The Century Wheelbase as a Ground of Basic Design.

Basing the layout of a cab chassis upon a permissible wheelbase of 100 inches, it is easy to determine the proportioning of the space from rear frame bar to dashboard, which can be approximately ascertained by a glimpse at Fig. 1. According to the hypothetical dimensions shown the body builder has 74 inches from the rear face of the dash to the center of the rear wheel, and whatever over this he thinks he can do with. These dimensions are modified somewhat in Fig. 2, which is a series of dimensions which would accommodate an uncramped coupé body. Here is a dimension of 88 inches from dash to wheel center or a matter of 14 inches in wheelbase, all other conditions being the same as in the former.

In the case of the cab chassis the dimensions shown are not capable of any wide range of variation, nor

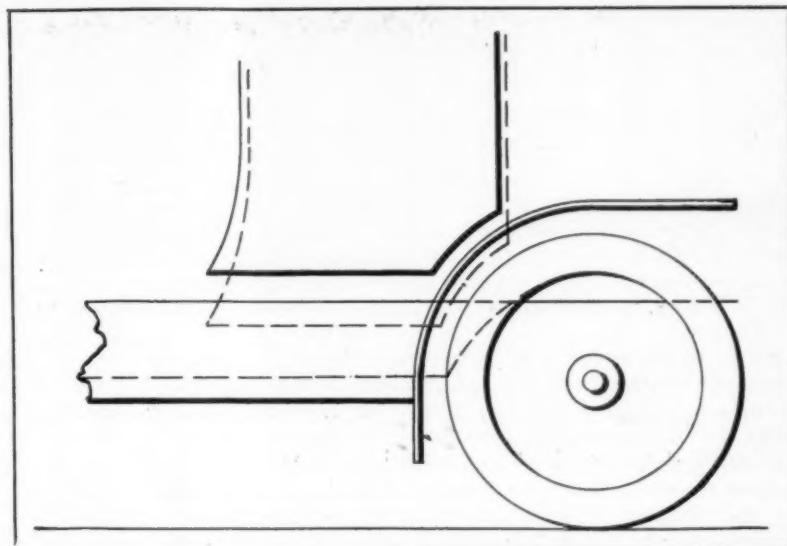


Fig. 5.—Location of door when a straight frame is used.

is such a machine a dream of comfort from the driver's point of view. On the other hand, economy of driver's space is absolutely necessary to give any kind of door room.

Now in the dimensions shown a Morris chair effect is given to the driver's portion of a body built to the hypothetical dimensions in Fig. 2. A low slope to the footboard is indispensable and the seat must be at least 16 1/2 inches high to the top of the cushion from the floor line, this latter, of course, being determined from chassis design; but there is ample room for a good door, sufficient space to prevent the use of a concave corner to the door for fender clearance being necessary and sufficient room between door and rear wheel center necessary to insure a minimum overhang of body with reasonable regard to economy of wheelbase. The ideal would be to have the frame rear bar about two to three inches inside the rear wheel center, but then the wheelbase immediately ascends to a figure that is impossibly high for the purpose in view.

Desirability of the Low Body Carriage.

Now go further and examine the diverse problems in the process of the selection of a frame design. Figs. 3 and 4 reveal known types of these: *A* is the ordinary straight frame—excellent and by no means impossible of utilization. *B* is the single raise, or, as is commonly known, the single drop frame, the rear end being raised to give clearance to the rear axle. *C* is known as a "kicked" frame and is simply a straight frame with clearance provision. *D* is the crude form of what is known as the "double drop frame," depressed to lower the center of gravity of the assembled machine and raised again for clearance purposes. *E* is a similar form but depressed only for the body space. *F* is a very highly developed form used by a few European firms and by one well-known American company. *G* is a type unknown but probably nascent, since it would be much easier of manufacture than either of the others.

Now it will be obvious to the reader that it is a quite desirable

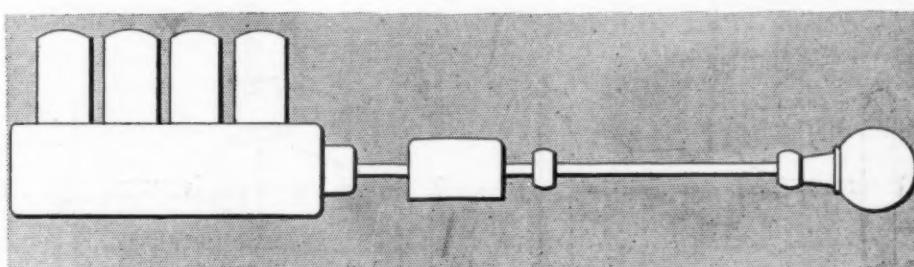


Fig. 6.—Straight line drive direct from motor to rear axle.

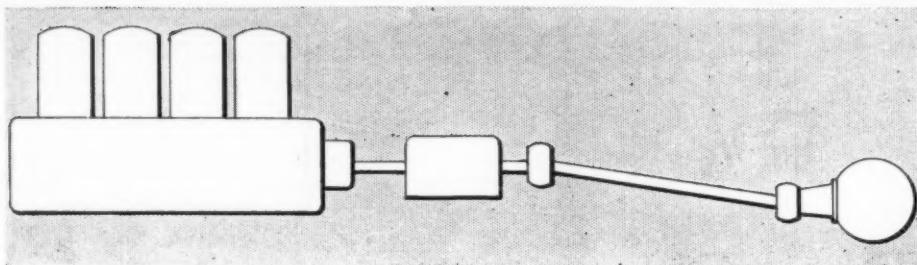


Fig. 7.—Conventional transmission arrangement with universal joint.

thing to secure as low a body suspension in conjunction with reasonable clearance, and consequently frames such as indicated in the series *D*, *E*, *F* and *G* are desirable from this point of view. On the other hand, they are more expensive to press, less strong and, lastly, more expensive to assemble. But these matters are more than compensated for by the scope provided for the designer to accomplish beautiful carriage lines—low suspension—and to abolish running boards. This for the town car. With the restricted wheelbase of the taxicab the only possible frames of this pattern are those shown at *E* and *D*. The depression of the center of gravity preserves the appearance of the machine when complete except that a running board would be dispensed with. It strikes the writer that the straight frame, stronger and cheaper as it is, has claims not to be superseded. By straight frame in this connection is meant either of the frames shown at *C*, *B* or *A*, with due regard to the pattern of spring suspension which may be employed.

It will be readily appreciated that the double drop frame is not easily to be employed for taxicab chassis when the relation of the door to the wheel fender is considered. Thus in Fig. 5, a straight frame being used, the door may be located as shown by the full lines, whereas a drop in the frame lead, the wheel and fender remaining as before, the designer immediately encounters an interference of some magnitude which can be avoided only by an increase of wheelbase if other dimensions are fixed. The conclusion that the straight frame is the only possible type for cab construction has been borne in forcibly upon the writer only after a very close investigation of conditions, possible variations in existing systems and costs involved in a successful design and conclusion equally strong in favor of the cradle frame for town cars has been reached.

In the Matter of the Transmission Types.

Pass to the transmission system. There are three fundamental arrangements possible—planetary transmission or sliding gears for the speed-change, and the location of either in a separate unit just back of the motor, or in combination with the rear axle.

It is eminently desirable that a vehicle for town use shall have four speeds, for not only is its power limited by reason, but the call for rapid acceleration is more frequent than with a vehicle primarily designed for open road work. Highly developed accelerative properties in a motor car speak of two things—extraordinary engine power or nice proportioning of gear ratios. The old and foolish idea that a machine having two speeds only can reach its maximum speed as quickly as another of similar

power with a plurality of speed changes has died a quiet death, even as the two-speed fetish has subsided. The three-speed car, even with six cylinders, is to be replaced by again having four changes in many cases. These things spell retrograde evolution to the theorist but satisfaction to the operator.

This leads back to the old standby, sliding gears, and it is necessary to decide first what ratio to adopt for the relation of the speed change to the drive. Figs. 8, 9 and 10 show some constructions possible with a conventional engine location. In Fig. 8 is seen the usual common or garden construction, the only variant of which lies in the use of a single universal joint in place of two. In Fig. 9 there is another conventional scheme in which the transmission is grouped about the rear axle center, and in Fig. 12 is a somewhat unconventional assembly in which transmission and axle are in unit form, but in which the transmission is grouped about the forward end of the propeller shaft. The problem then is to distinguish between the merits of the following alternative systems:

1. Arrangement such as shown in Fig. 8:
A. Gearbox being entirely separate from engine.
B. Engine and propeller shaft as a unit.
C. Axle and propeller shaft with its housing as a unit.
D. Propeller shaft as a unit in itself with supplementary radius and torque rods.
E. Engine, gearbox, propeller shaft, housing and axle as a unit.
2. Arrangement such as shown in Fig. 9 subdivided as follows:
A. Axle and transmission as single unit propeller shaft supplementary with radius and torque rods.
B. Axle, transmission, propeller shaft and housing are one unit.
C. Engine transmission, propeller shaft and housing as one unit.
3. Arrangement such as Fig. 10 with:
A. Transmission, propeller shaft, housing and axle as a unit.
B. Engine, transmission, propeller shaft, housing and axle as a unit.

Now if this tabulation be inspected it will be seen that the highest development in each individual system leads to the same conclusion, which conclusion coincides with that reached in course of discussion on clearance, wherein the inclined system either with its components assembled as a unit or in flexible mounting was outlined as the most likely type.

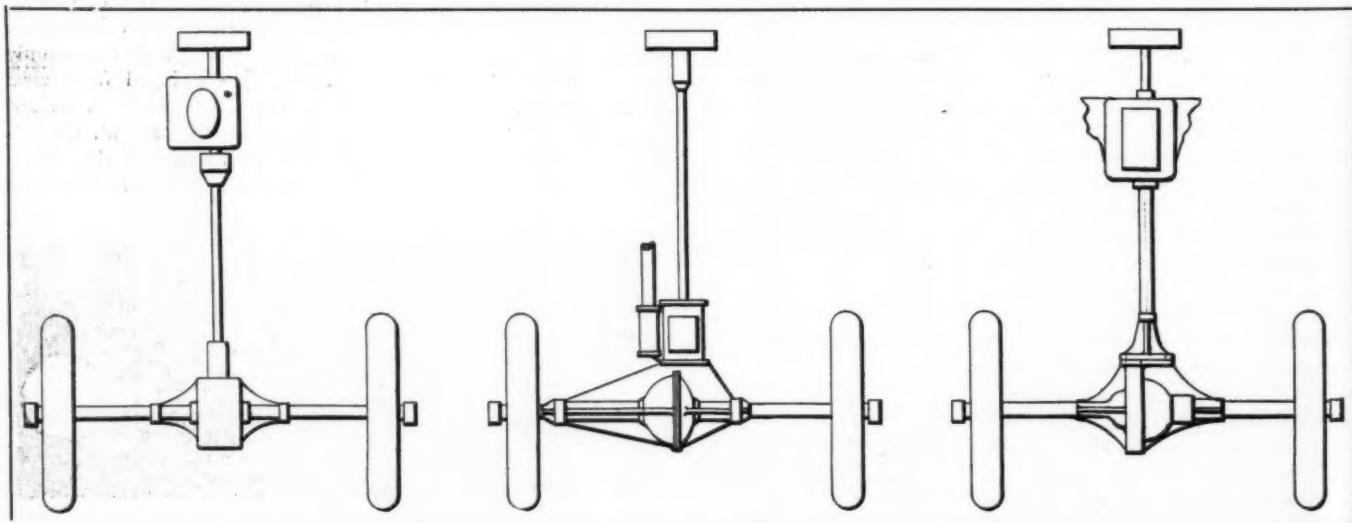


Fig. 8.—Ordinary placing of the gear-set. Fig. 9.—Transmission grouped about rear axle. Fig. 10.—Elimination of the torsion rod.

CALIFORNIA ADVANCED IN MOTOR FARM MACHINERY

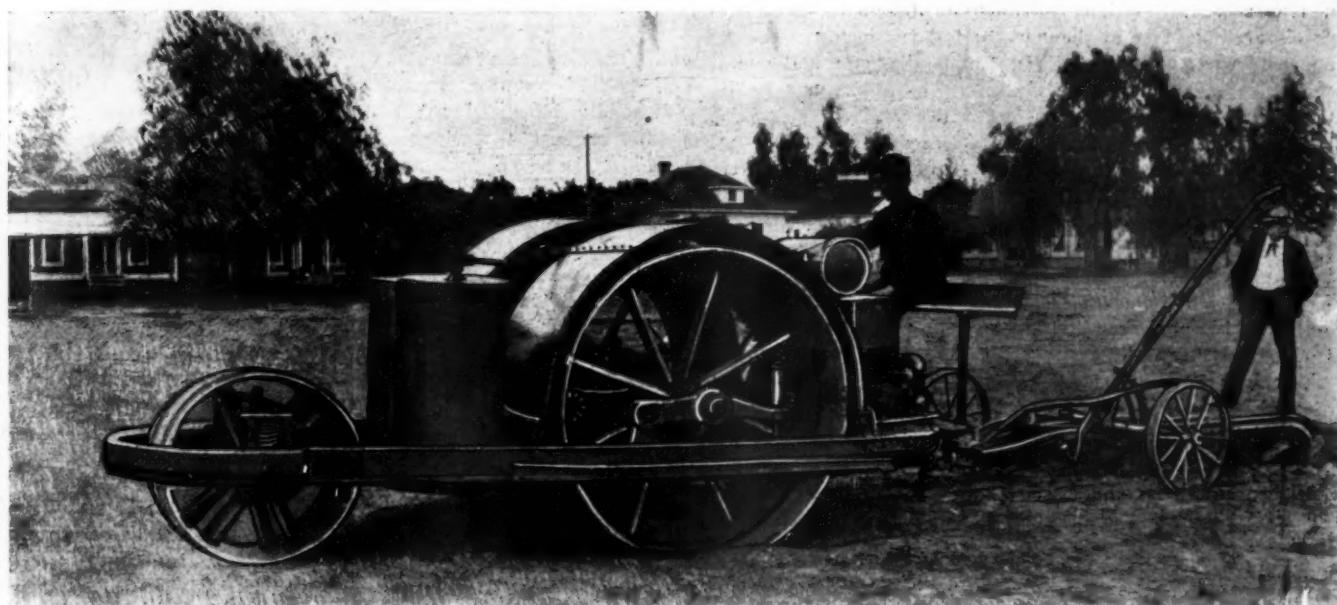
BY VICTOR LOUGHEED.

FROM the dawn of history the necessity for animal power in tilling the soil has been the heaviest burden on agricultural enterprise, subjecting it to uncertainties and a severity of labor through which, despite its fundamental importance to human welfare, it suffers by comparison with the more business-like organization of most other industries. Recognition of this great handicap upon what is the most vital and important source of the prosperity of nations has for some years been the inspiration of one of the most cherished dreams of automobile enthusiasts and progressive farmers alike—that the time is nearing when motor traction, in the form of automobile plows, harvesters, mowers, and the like, will give final and effective answer to this problem of the ages.

The nearness of this ideal to practical realization, however, is not generally appreciated even by those closely in touch with

in diameter, geared to a 110-horsepower engine, are a commonplace feature, and explain an ability to tow heavy loads over rough ground that is little short of amazing. Plows turning thirty-six ten-inch furrows at once, and harvesters heading, threshing, and sacking sixty-foot swaths from a wheat field are easily pulled by these machines. As tractors, loads of ore and lumber aggregating seventy-five tons are hauled on two or three trailers, while as much as thirty-five tons can be freighted up a fifteen per cent. grade. When it is considered that all this is not merely in the way of supplanting the horse, but in work for which the equine proves absolutely inadequate and unavailable, something of the attitude of California's bonanza ranch owners toward farming with power will be appreciated.

In the more recent exploitation of this field with internal-combustion engines, in which the Pomona Manufacturing Com-



Plowing Six Furrows at One Operation with One of the Specially Designed Auto Farm Tractors, in California.

the main trends of automobile development, this being due not so much to lack of discernment as to lack of interest on the part of those more directly concerned with improvement in pleasure and commercial vehicles of the established types. For this reason it would come as a surprise to many to learn what a really large measure of success has already attended the working out of farm tractors and similar agricultural implements, numbers of which have been actually on the market and in severe service for some time. One of the most practical among those of recent appearance is the machine illustrated herewith. This machine, like most successful ones, is a highly specialized device, originally designed to meet peculiar local conditions—in this case the tilling of the orange orchards in the famous citrus belt of Southern California.

It is not widely known, though no less a fact, that the Golden State is an undoubted pioneer in machine harvesting—traction engines having been used in the San Joaquin Valley wheat fields for at least twenty-five years, in the production of crops from the thousands upon thousands of level acres upon which the fame of this great valley is founded. So far, most of these engines have been ponderous steam affairs, of prodigious weight and size, ranging up to twenty-one tons, and to such dimensions as twenty-four feet in over-all length, fifteen feet of width, and a height of twenty feet. Driving wheels eight feet

company, of Pomona, California, are the pioneers, the greatest demand seems to be for five or six-ton machines, of a compactness and simplicity not realized with the steam plants. By development in this direction, moreover, the advantages of traction plowing and cultivating are not only brought to the more numerous smaller land owners, but new possibilities are opened up in the field of orchard plowing, in which the great height and bulk of the steam machines are prohibitive.

These considerations have been the predominating influences in shaping the designs of the new gasoline machines pictured herewith, which are built with especial reference to use in close quarters and under the branches of trees. The lighter model, for example, is only five and one-half feet high, thirteen feet long, and less than eight feet wide, yet it has ample traction for plowing ten furrows at once in ordinary ground. The motive power so far has been supplied with ordinary two and four-cylinder four-cycle engines, of heavy marine and truck types, but experiments are now under way that in the very near future will lead to the use of lighter and more powerful engines, more nearly conforming to the most advanced automobile practice. The weight of these machines ranges from five to seven tons, with from thirty to fifty horsepower.

A heavy wrought and cast-iron frame forms the foundation of each vehicle, which is carried on four wheels—though the



Auto Farm Tractor as Seen from the Front.

two steering wheels practically amount to a single wheel, made in two adjacent sections to facilitate turning. The driving wheels are five feet in diameter and thirty inches wide, while the front wheels are each three feet in diameter and one foot wide. Their arrangement is such as to afford a three-point support on the ground, with the further advantage that the front pair track exactly the space between the two rear, so that all the ground is subjected equally to the rolling and flattening effect—beneficial in that it crushes clods and leaves a surface well adapted to conserve moisture. The steering wheels are each in one piece, of cast iron, and each has a circumferential rib to prevent side slipping. The rear wheels have been made of wrought and cast-iron elements in combination and of cast iron alone, but preference is now given to the latter construction, provided with suitable transverse ribbing to assist traction.

Steering is by means of a turntable ring surrounding the front wheels, carrying their axle, and arranged to revolve on a ball circle placed in a similar ring integral with the frame. By this construction the objectionable height that would be inseparable from any overhead-pivot construction is avoided. The steering post, which is considerably raked, bears at its lower end a worm meshing with a worm gear borne on the upper end of a short vertical shaft. On the lower end of this shaft is a drum that drives the steering turntable by means of a wire cable. In this way irreversibility is provided and reduction enough to afford ample leverage is assured.

EXPORTS FOR 1908 A SUBSTANTIAL FIGURE.

During the course of the last twelvemonth, ending with June, which terminates the government year, American manufacturers sent abroad no less than \$4,656,991 worth of automobiles, and \$620,856 worth of automobile parts, making a total of \$5,277,847. Owing to the slight falling off that has been apparent in the returns of the past few months, this does not come up to the showing of \$5,502,241, which was the total for 1907, although it shows a very substantial increase over the 1906 figures of \$3,497,016. This is illustrated by the returns for the month of June, 1908, as compared with the same period a year ago, during which \$732,054 worth of parts and cars were shipped out of the country, whereas this year the total only reached \$710,722. Doubtless this falling off can be traced directly to the period of lessened activity last fall, for, as shown by the detailed returns, such countries as the United Kingdom, France, Germany and Italy, all of which are automobile producers themselves, have taken constantly increasing quantities of American cars and parts, the gain in values sent to Great Britain during the past year being more than a quarter million, while to France it was \$180,000 in round numbers. The total number of cars sent abroad during the past year was 2,477, making their average value \$1,880, which marks a very substantial increase over those sent in earlier years.

The final drive is from pinions on a countershaft to large spur gears on the wheel hubs. At the center of the countershaft is a differential of regulation type, to the housing of which the drive is by another spur-gear set. The change-speed gear affords four speeds forward and two reverse, and consists practically of two separate sliding-gear systems, each affording two changes. One of these systems is made to shift while running, and the other practically amounts to an alternative final-drive ratio, capable of being changed from one setting to the other only while the machine is standing. A decided novelty of considerable interest as a means of evading an otherwise serious problem is the use of a momentum element in the transmission to keep the vehicle moving during gear manipulation. A multiple-disk clutch is used, thoroughly fool-proofed by enclosure in an oil bath protecting it from dirt and mud.

The working speed is from two to three miles an hour, anything in excess of this being found unsuitable for plows and other implements as at present constructed, though there is a strong probability that the development of motor machines in this field may lead to the design of implements that will work at higher speeds than the present types of horse-drawn devices. For traveling to and from the fields a road speed of five or six miles is provided, and this is also practical for traction work.

To combine a maximum of utility with a minimum of cost, standard coupling devices have been worked out to admit of the attachment of any sort of trailer to the tractor. Among the classes of machines thus arranged for there are—besides plows, seeders, and harrows for preparing the ground and planting grain by a single operation—various tools and trailers adapted to orchard cultivation, furrowing for irrigation, hauling fruit to packing houses, etc. For beans and some other crops a combined tool may be used, consisting of cultivator teeth to loosen the ground, weed knives for removing undesired growths, and smoothing teeth for pulverizing and finishing the ground ready for the planting of the crop.

To the field of road work, in which such great interest has been awakened of recent years by automobile users and other advocates of good highways, important applications of the new tractor are expected. Not only is it suitable for hauling plows, scrapers, and graders of the various types used in road-making, but its broad wheels, tracking heavily the whole width of the vehicle's tread, do away with the necessity for specially-built rollers, every purpose of which they fully serve, so that machines of this type will undoubtedly come into general use for road construction and repair work in this country within a comparatively few years, at the most.

THE BEST WAY TO CHECK SPEEDING.

Chief of Police Donovan, of Portchester, N. Y., now believes that gentlemanly methods are the most effective in dealing with automobilists. Instead of setting ambushes and traps, he stations his men on the different roads leading into Portchester with cards to hand to the occupants of passing machines, welcoming them to the city and requesting them to observe the speed laws while passing through. Chief Donovan says that the plan has now had a fair trial and has been productive of results far beyond his expectations, as there has not been a single violation of the speed laws since the cards were distributed.

AUTO PATROL WANTED IN ST. JOSEPH.

ST. JOSEPH, Mo., Aug. 1.—Chief of Police Frans is strongly urging the powers that be in this city to purchase an automobile patrol for the police department. The rapidity with which the city is spreading out in the northern and eastern districts will soon necessitate building sub-stations there unless automobile-service is provided. While the first cost of the auto would be heavy, Chief Frans thinks that it would soon pay for itself by the saving in horseflesh, as well as by the far greater rapidity with which cells from outlying districts can be answered.

LETTERS INTERESTING AND INSTRUCTIVE

ABOUT TESTING OUT THE SPARK COILS.

Editor THE AUTOMOBILE:

[1,493.]—Will you please inform me through your query department how to test out the spark coils? I have never seen this stated and would like to have some light shed on the subject.

Leominster, Mass.

C. F. NIXON.

There are several ways in which the spark coils of any automobile can be "tested out," so we are somewhat at a loss to know exactly what you wish. The test most commonly required by the average autoist, however, is that for the consumption of battery current, and on this subject we have published fully a score of letters during the past year, with more or less lengthy answers thereto. Take a low-reading ammeter, *i.e.*, one that is calibrated up to 3 amperes by tenths of an ampere, and insert this in series with the coil to be tested. That is, connect one terminal of the instrument to the battery and the other to the primary terminal of the coil, so that all the current which passes through the coil to cause the spark must go through the instrument, commonly called a coil-current tester, or meter. This must be done with the motor running under its own power, as a test made under any other conditions would be valueless for practical purposes. The needle of the meter will move every time the current passes and then drop back again to zero, but as good instruments of this kind are of what is known as the dead beat type, in that the movement of the needle is resisted by a counteracting force, and does not fluctuate constantly about the point at which it should come to rest, it will not be found difficult to gauge the current consumption in spite of its constant jumping, due to the current being entirely cut off each time the motor fires. Screw the trembler adjustment of the coil up or down according to the reading given by the instrument, until the coil is consuming the minimum amount of current that the motor will run on without missing. This should not exceed 0.50 to 0.75 ampere. The manner in which battery current may be wasted unconsciously may be shown by screwing one of the trembler blades down hard, which will cause the needle to register two to three amperes. Repeat the operation in the manner above described in the case of each coil.

TROUBLE WITH A GOVERNED MOTOR.

Editor THE AUTOMOBILE:

[1,494.]—In your "Letters Interesting and Instructive" will you give me your diagnosis of this trouble? My 4-cylinder engine runs perfectly when the throttle is open. But on the governor, it skips the two forward cylinders entirely. These receive their gas through the same section of manifold, and I have removed and replaced with every care the manifold many times, and cannot find that there is a leak on that side whatever.

As soon as the volume of gas is increased through the throttle, Nos. 1 and 2 pick up with the rest, but not until the throttle is well open.

This causes the use of too much gas and makes the engine hard to handle and have uniform power on any low speed. Could this trouble be caused by anything else than a leaky manifold on that side? The compression in both forward cylinders is fine and equal to that in the two back ones, and the timing of the valves supposedly the same.

LOVER OF THE SPORT.

Albany, N. Y.

If your investigations have satisfied you that there is no question of anything being wrong with the manifold, we should suggest cutting out the governor and running the engine as slowly as it is possible to do so by closing the throttle by hand, meanwhile observing its action. If it will run slowly when governed by hand in this manner and have each cylinder fire regularly, you will be able to put down the trouble as caused by the governor itself. There may be some derangement of the throttle valve, by means of which the gas to the two forward cylinders is cut off entirely when the throttle is partially closed and no fuel reaches them until it is opened to a certain point.

INTERESTING QUERIES ABOUT LUBRICATION.

Editor THE AUTOMOBILE:

[1,495.]—I have an engine with the crankcase divided into three compartments or crankpits. Will you tell me how I can, using splash lubrication, keep the oil at a constant level, supply being from a tank, without using a pump or other similar device?

I have been told that I can use some such arrangement as is used in the student's safety lamp, but I have been unable to find out what this is. I will be very grateful for any help you can give me.

In your issue of July 23 I see that the oiling systems on the Franklin and Studebaker cars went out of commission, and that they finished with a perfect score by using only the splash. If this is sufficient, why use the oilers at all?

M. E. M.

Far Rockaway, N. Y.

Probably the best way to accomplish this would be to take three independent leads from the gravity tank, one to each of the three compartments of the crankcase, placing a gravity sight feed on each one of them in a place where it would be readily accessible for regulation. By experiment, ascertain the proper level to maintain the oil supply in each of the crankcase compartments. This can be done by putting in what is known to be an excessive supply, and gradually reducing it to a point where the motor shows no signs of smoke at the exhaust, but where the bearings are still getting an ample supply of oil; some motors, owing to poor design, cannot be properly lubricated short of smoking. Having ascertained just what the proper level should be, the next thing to find out is how much oil should be fed per minute to maintain this level while the motor is running. A good sight feed can be regulated to pass anything from two or three drops per minute up to a steady stream, but doubtless it will be found that a feed of from 12 to 15 drops per minute will be about what is required for the average motor that does not show any tendency to run dry. The best material to make such a tank of is copper, and the best location for it is right alongside the motor, at about the level of the cylinder heads. In this position the oil will be subjected to a practically constant temperature summer and winter, while the motor is running, and there will be the minimum necessity for altering the adjustment of the feeds. By placing the tank as above indicated and adhering constantly to the same grade of oil, there should be little occasion for making any change in the adjustment of the feeds. Otherwise the greater or less viscosity of different grades of oil and its varying density with the temperature would tend to alter the rate of feed every time conditions changed. An equally simple, and far more positive, method of lubrication consists of maintaining the level in the crankcase by means of a reservoir and a pump. The capacity of the latter is such that it just supplies sufficient oil to insure the proper quantity, the oil running from the tank into the crankcase by gravity, being lifted again to the tank or reservoir by the pump. By this method the same oil is constantly circulated, sight feeds being put in the pipes to show that it is running. Such a system starts and stops with the motor, and comes as near to fulfilling the requirements of being automatic and self-contained as any that we know of. There are no adjustments to watch, and it is only necessary to clean out the crankcase and renew the supply every 300 to 500 miles, according to the efficiency of the motor in this respect. This is something that should be done on every car, regardless of the type of lubricator employed, as the oil remaining in the crankcase after that distance is practically valueless and should be replaced by fresh lubricant.

The fact that the cars you mention managed to complete the day's run with their oilers out of commission is not proof conclusive that they could be run indefinitely without the force-feed oilers with which they are equipped. Practically

every car, regardless of the elaborateness of its oiling equipment, depends in greater or less measure on splash lubrication. The object of the oilers is to maintain the level of the oil in the crankcase and to insure the delivery of a supply of oil at points not ordinarily reached by the splash, or not covered as positively as the force-feed oiler can do it. The latter takes the place of the gravity feed arrangement described above, and force-feed types of oilers have supplanted gravity principally on account of their certainty and reliability. But there must be a certain amount of oil present in the crankcase before there is any splash, and in some cars this is quite a quantity, on which they are able to run for some time without renewing the supply. A description of a circulating system such as we mention was published in *THE AUTOMOBILE* of June 11, page 810.

A CHANCE FOR SOME PROGRESSIVE FIRMS.

Editor *THE AUTOMOBILE*:

[1,496.]—I have been very much interested in the articles on "Autogenous Welding" in "The Automobile" and can realize fully the great value of this process in making difficult repairs which any motorist is liable to be in need of, and hope you can give us more information in the way of "Cost of Autogenous Welding Equipment, Upkeep, Practice, and Skill" required to do good work, and, if possible, I hope you may induce a few firms doing this kind of welding to advertise regularly in "The Automobile," and thus enable any of us who may be in need to know at once where we can get such work done promptly and well. C. AVERY.

Pleasant Lake, Ind.

There are already two or three firms who are making a specialty of automobile repairs by means of this process and some of the work that they have accomplished is certainly eye-opening. In one case that was called to our attention recently a piece had been blown out of the interior of the combustion chamber of one of the cylinders of a four-cylinder motor. Under ordinary circumstances, there would have been no possible alternative but to scrap the twin-cylinder casting and supply a new one—rather an expensive repair. With the aid of a cutting burner, however, a piece was cut out of the jacket over the place where the injury had resulted to the combustion chamber of the cylinder. The piece that had been blown out was fished out of the jacket, cleaned up and welded back into place. The piece that had been cut out of the jacket to gain access to the repair was then welded back into place and the job was complete; time, considerably less than would have been required to dismantle the motor, remove the defective casting and replace it with a new one, as the work could be done without the necessity of taking the motor down. However, it is usually customary to remove such a part as a cylinder, as it is considered better to preheat such a large piece before welding it in order to avoid setting up internal strains in the metal, which might be the cause of trouble later.

Referring to your query as to information concerning the cost, equipment, upkeep, practice and skill required in autogenous welding, we will have to request the firms that are making and using the apparatus to come to our aid. It must also be borne in mind that the process is of comparatively recent origin and its advantages are not generally known. When they are, a great many breaks that now mean expensive replacements will be made good for very little and there will be few, if any, hopeless jobs. The suggestion that firms who are doing this work should make the fact known to the body of automobilists at large is one that, if followed, should result to the benefit of all concerned.

MISFORTUNES WITH A NEW RUNABOUT.

Editor *THE AUTOMOBILE*:

[1,497.]—I am an interested reader of "The Automobile," and especially of the Letters Interesting and Instructive department. I would like to have you advise through it regarding my Buick four-cylinder runabout, Model X. This car was purchased June 1, 1908, and has given me a great deal of trouble through faulty ignition. Two cylinders leak compression badly at all times, and

I have had to have the valves ground three times in running 600 miles. I am using a good grade of lubricating oil—one that is recommended by the company, but the oil will work up and cover the spark plugs in 10 miles of travel. A few days ago I withdrew the oil from the crankcase and injected coal oil into each cylinder. I found that the coal oil leaked past the piston rings and into the crankcase in the cylinders, in which the compression was weak.

Do you think I could remedy this trouble by putting on new piston rings, or is it probable that after a few months' running the rings will expand enough to stop the loss of compression? If I put in new rings, will it be necessary to have them ground in the cylinder to make them fit?

X. Y. Z.

New Salem, Ind.

There is apparently no cure for this loss of compression except the fitting of new rings, and if there is such a difference between the two pairs of cylinders, it might be found advisable to do this to all four cylinders while the engine is dismantled for the purpose, in order to make the compression in all four as nearly uniform as possible. Where a cylinder continues to leak in spite of the lubricating oil, new rings are about the only remedy, unless it is found on taking the engine down that the failure of the rings to act is not caused by any fault of the rings themselves but is due to carbon having got beneath them. If an examination shows this not to be the case, put in a new set of rings on each cylinder, and we should think that if the circumstances were explained to the maker of the car he would be glad to furnish such a replacement gratis, as an engine should never show such a defect after a few months' running. The mileage you state is hardly more than a good running-in trial; the engine should only have about found itself at the end of that time, instead of giving the trouble you complain of. It is not absolutely necessary to run the new rings in to the cylinder, but where this can be done it is preferable. After reassembling the engine, with the exception of the valves, flood the crankcase with oil and belt to some source of power, such as an electric motor or another automobile engine. Run at a comparatively slow speed for several hours and then finish assembling. If this cannot be done, assemble the engine for running, and have it turn over at a moderate speed without too much load, meanwhile using a liberal quantity of oil. In fact, it will be found advisable to use plenty of oil for the first few weeks, until the rings accommodate themselves to the cylinder. With good tight rings and the proper quantity of lubricating the trouble with the spark plugs should disappear.

IS THERE ANY BOOK OF CURRENT STYLES?

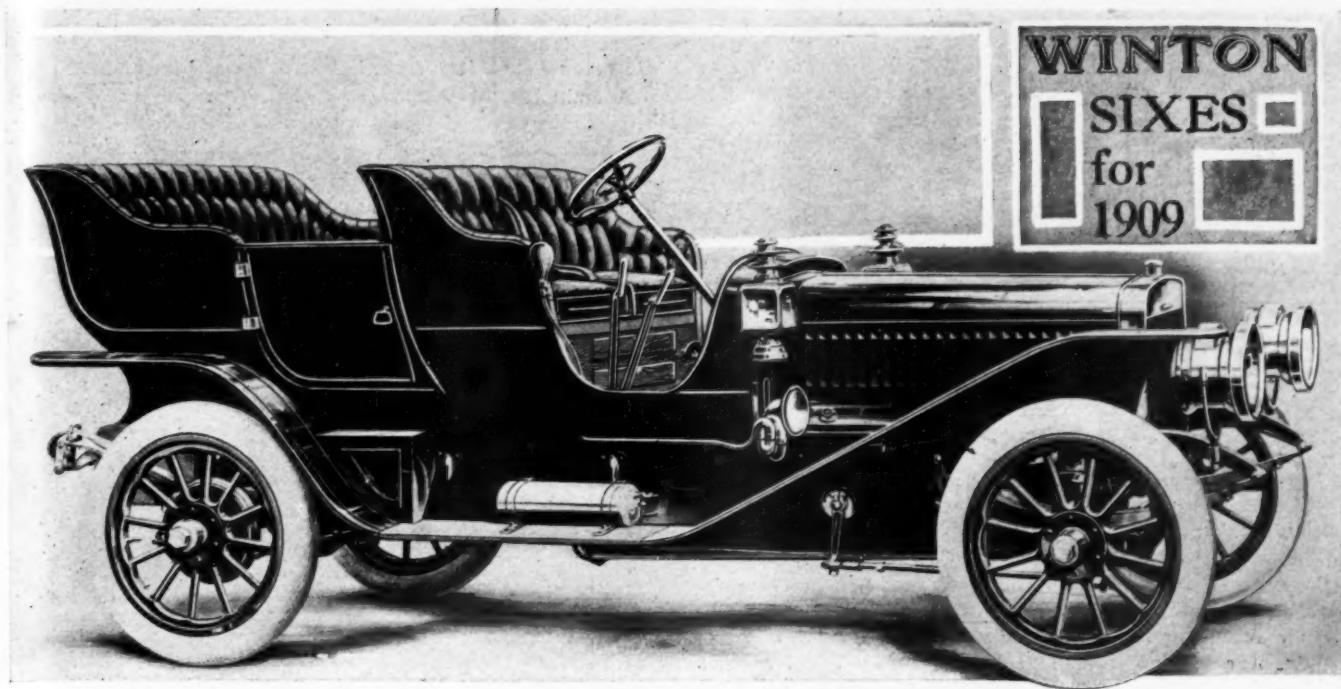
Editor *THE AUTOMOBILE*:

[1,498.]—I wrote you a letter a few days ago asking if you knew of any book that has been published recently and was advertised in "The Automobile," telling how to tell all the different automobiles from each other, which sold for fifty cents. Is there any machine made, either buggyabout or a standard model, using a two-cycle motor, friction drive and air cooled? GEORGE BRIGGS.

Bournedale, Mass.

So far as we know, no book of this kind has been published, at any price. The nearest thing to it would be the annual handbooks of the manufacturers' associations, the Association of Licensed Automobile Manufacturers and the American Motor Car Manufacturers' Association, both of which publish books illustrating and detailing the specifications of the current models of their makers. The address of the former is 7 East Forty-second street, and the latter, 29 West Forty-second street. We understand that both associations supply these books to prospective purchasers on request and free of any charge. Of course, there are a number of makers who are not members of either association.

The car that comes closest to your specifications, and the only one of the kind that we can call to mind at the moment, is the Duryea buggyaut. This has a two-cylinder, two-cycle, air-cooled motor and a type of friction drive that is novel. There may be other cars that fall more or less closely within your requirements as set forth, but we do not recall them, and probably some of our readers will come to our assistance, as it is getting pretty difficult to keep them all in mind, particularly as so many come on the scene only to disappear within a comparatively short time.



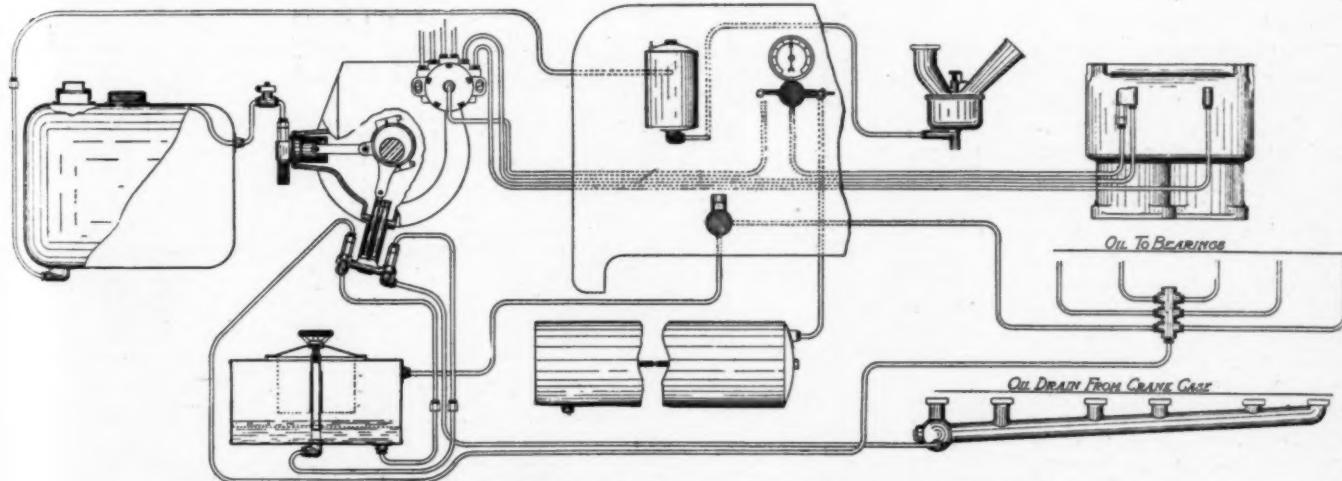
One of the Successors of the Winton Six-Ten-Six for 1908, to List at \$3,000.

FOR the season of 1909, there will be two Winton six-cylinder cars in the field, in accordance with the previously outlined policy of the Winton Motor Carriage Company, Cleveland, O., to restrict its output to cars of that type exclusively. Both will be known as "Winton sixes," and their only practical difference will be that of size, the smaller, which is to list \$3,000, being a 48.6-horsepower car, according to the A. L. A. M. rating, and is a continuation of the Winton Six-Ten-Six that was accorded such a favorable reception this year, while the larger is a seven-passenger, 60-horsepower car, which will be characterized throughout by practically the same features of design. One of its chief differences will be the use of a four-speed selective change-speed gear.

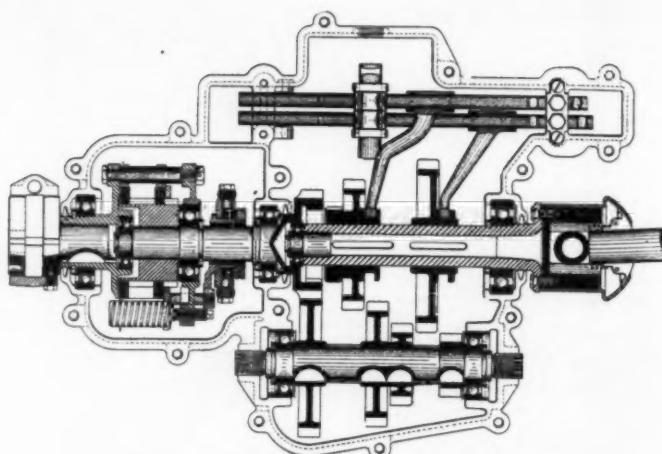
In both motors the cylinders are cast in pairs and are slightly offset from the center line of the crankshaft, in order to reduce the side thrust on the cylinder walls. The valves are all placed on the same side and operated from a common cam-shaft, the valves themselves being of the two-piece type of large size for the bore of the cylinder, and all are made interchangeable. The plan of enclosing the valve-operating mechanism in chambers on the side of the cylinders, and which are completely sealed by easily removable covers, met with instant success at the time the Winton Six-Ten-Six made its débüt, and has

accordingly been followed on both models, so that with the single exception of the flywheel, there is not a working part of the motor that is exposed in any manner. The self-starting device has also been perpetuated as a part of the regular equipment of both the Winton motors for 1909. It is continued without any change and consists of a method of taking compressed air from the forward cylinder of the motor and storing it in a pressure tank. From the latter, it is distributed by means of a rotary valve to the different cylinders in the order of their firing. The motor can, in consequence, be started merely by depressing a foot button on the toe board, the air pressure running the motor as if it were a compressed air engine until it takes up its own cycle automatically, when the button is released and the air shut off. The starting device does not interfere in any way with the other functions of the motor, so that as soon as the latter moves under the impulse of the compressed air, charges are drawn in and fired and the motor runs under its own power. There is but one moving part, the rotary valve, so that the device as a whole is extremely simple and effective. In one of the appended diagrams, the connections of the self-starting device, as well as those of the gasoline and oil supply lines are shown clearly.

The tank at the extreme left is for the main supply of gaso-



Showing the Relative Positions of the Self-starter, Oil and Gasoline Lines.



Clutch and Gear-set of the Small Winton Six.

line, while immediately at the right is the air pump, operated by an eccentric, which also operates the two pumps for the lubricating oil feed. The oil tank is shown immediately below the oil pumps, while at the right hand of the air pump is shown the air distributor for the self starter. On the right of the oil tank appears the air pressure reservoir with a line leading to the foot button and pressure gauge on the dash. The small tank shown on the dash is the auxiliary gasoline tank, the carburetor being shown at the right, as well as two cylinders of the engine. From the first cylinder two pipes lead; one of these is to conduct the air pressure from the cylinder to the storage tank and the other is similar to the feed pipes leading to each of the six cylinders to distribute air to them from the pressure tank through the rotary valve. The oil leads to the bearings and the oil drain from the crankcase are shown at the lower right-hand side, illustrating the circulation of lubricant.

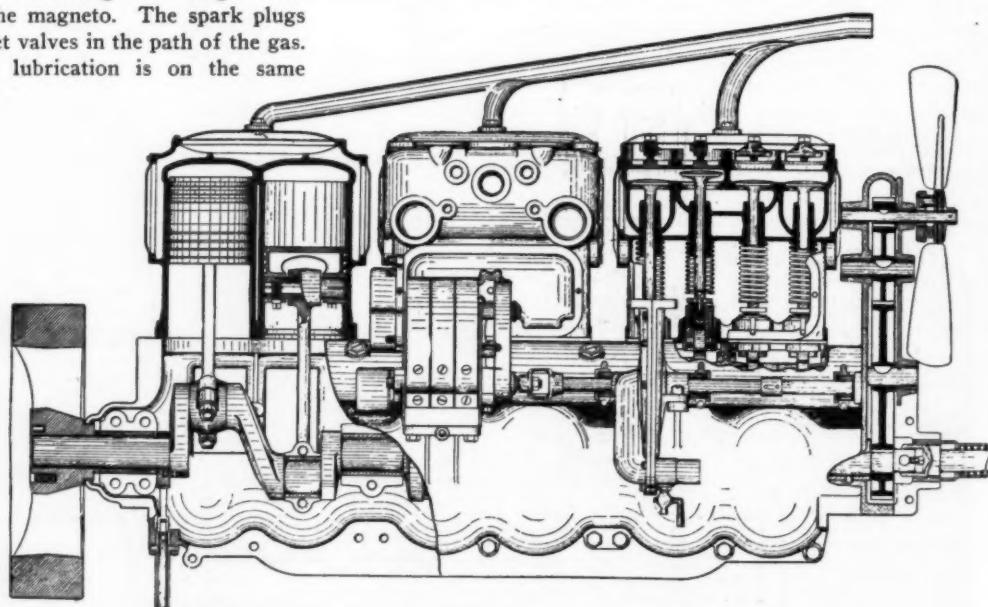
The carburetor is of the Winton type, having two nozzles and two throttles and operating progressively, the smaller opening first and the latter automatically picking up the larger one. The float chamber is placed concentric with the nozzle, thus maintaining a positive feed regardless of the grade. The carburetor is of the automatic compensating type, although it has no moving parts, and is placed on the side of the motor opposite the valves. A double system of ignition is employed, the Eisemann high-tension magneto being employed for the running side and constant service, while a set of accumulators is added to facilitate starting, their current being utilized through the single non-vibrating coil and distributor of the magneto. The spark plugs are placed horizontally over the inlet valves in the path of the gas.

On the 60-horsepower car the lubrication is on the same principle as on the Winton Six-Ten-Six, except that it has been considerably simplified by using but one pump, instead of twelve. The single pump is operated by an eccentric on the rear end of the crankshaft, taking oil from a tank at the left side of the motor and delivering it through the oil feeds to the crankshaft main bearings and forward gears. A second pump draws oil from the crankcase where it is deposited by gravity, and returns it to the oil tank above, where it is expelled to pass through a fine screen before being used again. There is a sight test on the dash to show the working of the system.

The cylinders are oiled by splash, while the clutch and gear-set run in an oil bath. A gear-driven centrifugal pump circulates the cooling water to and from the Winton type radiator.

A multiple disc clutch composed of 67 relatively small, steel friction surfaces constitutes the first step in the transmission of the power. Of these surfaces 33 are attached to the transmission shaft and 34 to the driving spiders, which are in turn connected with the flywheel, thus following the principle that the parts having the least inertia should be attached to the member having a variable velocity. Six springs placed at equal distances round the clutch distribute the pressure equally on all the discs, and they have been designed so as to be easily removable. The clutch and hand brake are interconnected and the clutch pedal cannot be locked out of engagement, except by the emergency brake. A selective sliding gear-set supported on annular ball bearings forms the next step in the transmission. The gears are of specially hardened alloy steel, and the set provides a direct drive on the third speed through an internal and external gear combination. By means of a safety device the gears may always be moved into neutral but cannot be shifted from one speed to another without disengaging the clutch.

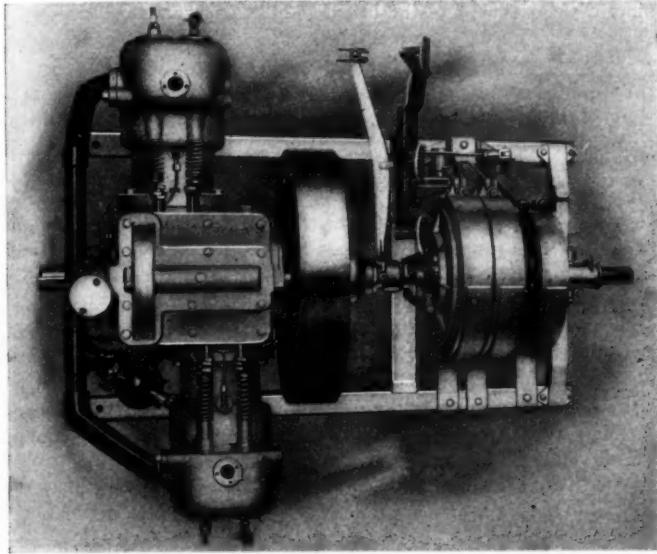
Final drive is by shaft with roller type universal couplings enclosed in grease-tight metallic cases. The flexible coupling between the motor and gear-set consists of a split housing engaging the square end of the main shaft of the gear-set, and a similar steel square bolted to the flywheel. Timken roller bearings are employed on the pinion shaft. The rear axle is of the floating car and carries no load, the weight of the car being supported entirely by the heavy drawn steel housing which surrounds the axle. A spur type of differential is employed and special Timken roller bearings are used throughout. The front axle is a one-piece I-beam casting of manganese bronze, as has been the case for several years, and this is also true of the Winton twin-spring suspension, shock absorbers having been added as a part of the regular equipment of the car. Brakes are of the usual internal expanding and external contracting types and are located in drums on the driving wheels, both sets acting through equalizers. A screw and nut steering mechanism with ball thrust bearings is employed, with a Lemoine type front steer, the steering links being adjustable, while the joints of all steering connections consist of a heavy bolt with a bushing, held secure by a nut and a large cotter pin. The wheels of the smaller car are 34-inch, while those of the 60-horsepower six-cylinder Winton are 36-inch, the wheels running on standard Timken roller bearings while the standard tire equipment in both cases consists of 41-2-inch Goodrich quick detachables.



Working Side of the 48.6-horsepower Motor of the Smaller Winton.

FEATURES OF THE GRABOWSKY TRUCK.

Several noteworthy features appear in the new trucks and commercial vehicles manufactured by the Grabowsky Power Wagon Company, of Detroit. They are the work of Max H. Grabowsky, formerly designer for the Rapid Motor Vehicle Company, now manager and designer for the company which bears his name. The company is at present turning out 1 and 1 1-2-ton chassis fitted with various types of bodies, for use as delivery wagons, passengers and sight-seeing cars, and for all kinds of municipal service, such as ambulances, patrol wagons, etc.



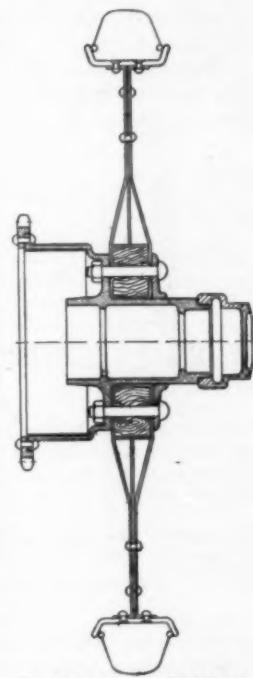
Plan View of Engine and Planetary Gear.

Perhaps the most striking innovation for such a comparatively light vehicle is the use of solid pressed steel wheels; these have many advantages for this service, being practically unbreakable, easy to keep clean, and at the same time cheaper than the ordinary wood-spoked wheels. The engine, of the two-cylinder horizontal opposed type, is placed at the front end of the car, and drives through bevel gears to a jack shaft, thence by chains to the rear wheels. The cylinders are 5 1-4 by 5 inches. The crankcase is cast of special grade iron, heavily ribbed. The crankshaft is a chrome-nickel steel drop-forging, 1 7-8 inches in diameter, with bearings of Parsons' white bronze.

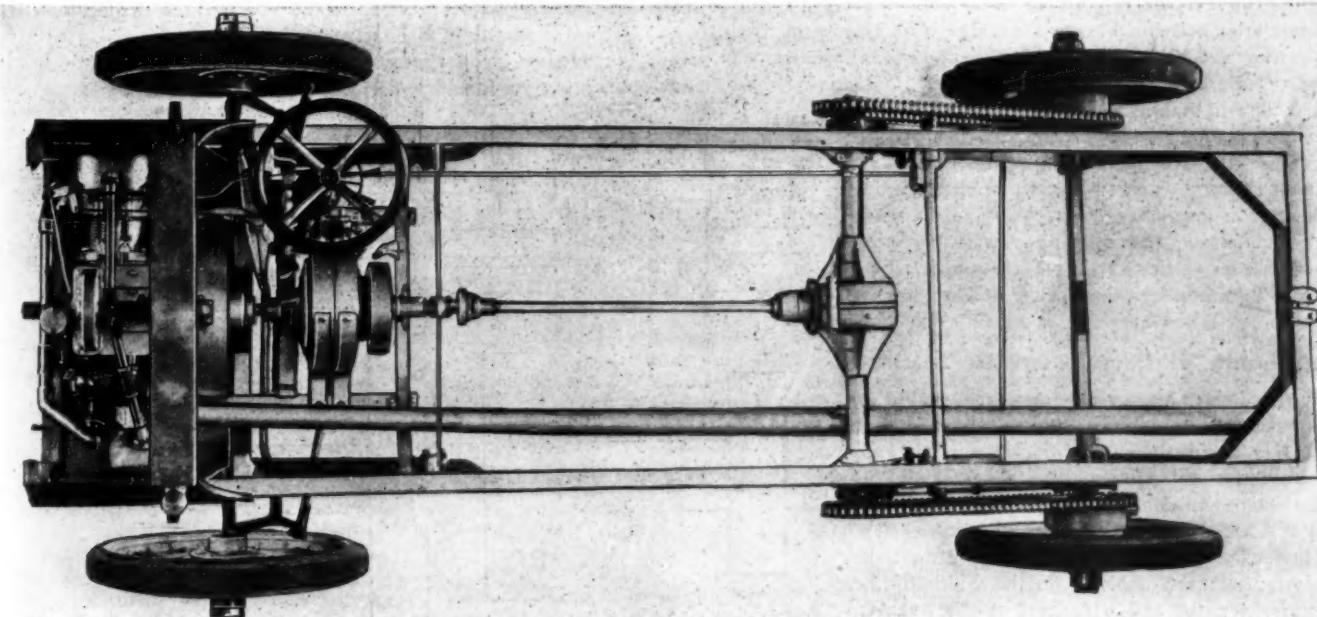
A standard ignition system is used, with storage batteries and coil in a special compartment under the front seat; the timer is carried on a vertical shaft in front of the engine, as shown by the photo; the lower end of this shaft drives the oil pump.

The engine is cooled by a thermo-syphon system which bears a strong resemblance to the steam-generating system used on several French cars about 1900. The radiator is constructed with a condensing tank four inches above the intake chamber; the water, returning from the engine in a steaming condition, rises through the tubes, collects in the condensing tank at the top, and then runs down to the main tank, from which it flows back to the cylinders. The position of the radiator, above and to the rear of the engine, allows easy access to the latter. When the hood is lifted the working parts are as ready to hand as if laid out on a work-bench. A two-speed and reverse planetary gear is used, with friction bands of spring steel lined with a composition of asbestos and copper. The entire power plant and transmission is carried on a separate sub-frame, and by removing two bolts and breaking six quick detachable connections, can be lifted from the car intact. If such a thing should ever be necessary, it would be the work of but a few minutes to put in a complete new engine and gear.

Both front and rear axles are constructed of the same material and dimensions, being of a special axle steel 1 1-2 x 2 3-4-inch section; the steering yokes have a six-inch spread. As stated above, the wheels are pressed steel, unless wooden wheels are specified by the purchaser, and are shod with solid endless side-wire tires. The frame is of extra-heavy channel section pressed steel, mounted on semi-elliptic springs in front and full platform springs in rear. The brake system consists of two internally expanding bands on the rear hubs, controlled by a pedal, and an emergency brake located on the drive shaft. There are no projections on the frame back of the steering column and controlling levers, so that the bodies may be easily slid on and off.



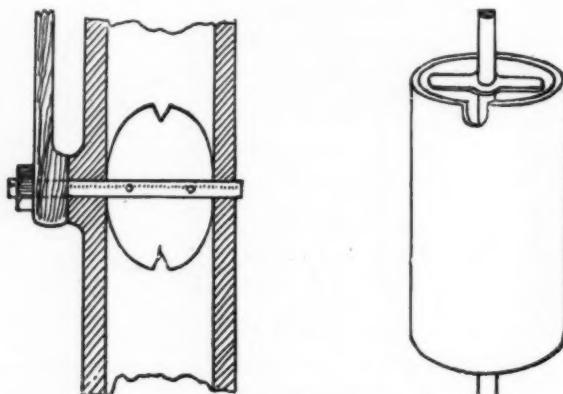
Section of Steel Wheel.



Plan View of Grabowsky Chassis, Showing Position of Radiator and General Layout.

PROPER ADJUSTMENT OF THE CAR'S ESSENTIALS

THE throttle valves in some carburetors are so designed and arranged that when they are almost closed a movement of the lever a single notch will stall or race the engine. This is bad enough if the steering column is perfectly stiff and the throttle movements are perfectly positive. If the steering column is springy the chances are the throttle movement is no longer positive, and one may stall or race the engine without shifting the lever at all, simply by pushing or pulling on the steering wheel



Curing Throttle Valve Trouble in an Old Car.

or by turning it in one direction or the other. When the throttle is well open the effect of this is imperceptible, but when the car is being maneuvered in limited quarters, as, for instance, on a garage floor, the fault is extremely annoying and may lead to accidents. The treatment will depend on the character of the throttle valve. If it is of the sliding or piston type, it is very easy to file a notch or slot in the edge of the valve, which will be opened by the first movement from tight shut, and will permit sufficient gas to pass to run the engine slowly with the clutch released. If this slot can be made fairly deep in proportion to its width the lever can be moved several notches without seriously affecting the speed of the engine. If the throttle valve is of the butterfly type the solution is not quite so easy. Fortunately, if this type of valve closes square across the pipe its first movement is fairly gradual. If the car owner has a carburetor with an elliptical butterfly throttle valve he will probably do best to take his choice between having the valve close tightly in its extreme position and having it close so that the motor will just run itself when idle. If he chooses the former alternative he will have difficulty in making his engine run quietly on a slight opening of the throttle. If, however, he chooses the second alternative, he can secure quiet running of the motor when idle by filing a notch in one edge of the valve as shown in the sketch and arranging his connection to the spark lever so that the slight amount of movement permitted by the spring of the steering column will not open the throttle.

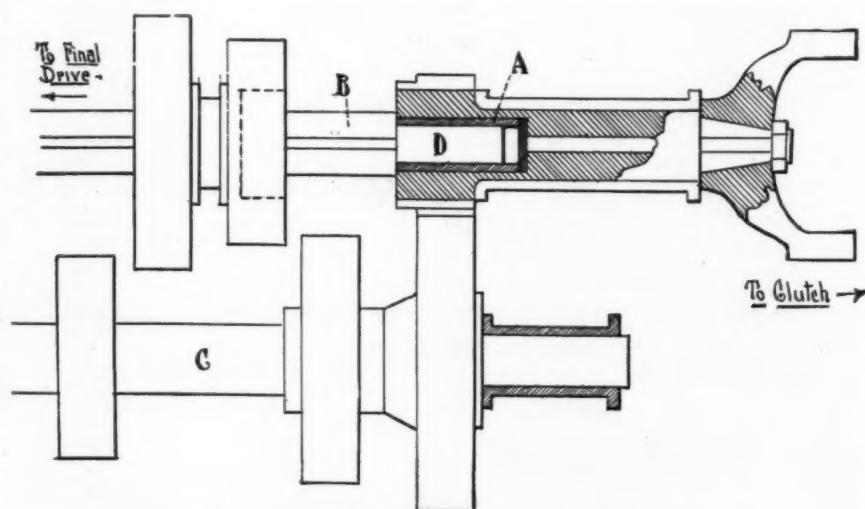
Alignment of Loose Gearshaft Bearings.

Although in theory all gearshafts should be perfectly lined up, perfectly straight, and a perfect fit in their bearings, it must be admitted that in practice these three conditions are seldom fulfilled; and the practical question is, "What limits of error can be tolerated?" Obviously, a categorical answer cannot be given; so much depends on the width of the gears, length and stiffness of the shafts, length of the bearings and other variables.

Gears with wide faces and small teeth require to be more accurately lined up than gears having narrow faces and large teeth. If either type of gear can be kept perfectly in line, so that its teeth have a bearing clear across their faces, it will wear much more slowly than if the teeth bear only across a portion of their faces. If the shafts are sprung, which may not impossibly be the case, the gears are much worse off than if the shafts are simply out of line, and the bearings also are worse off, since they will tend to wear oval, hour-glass shape, or otherwise, according to the particular kink in the shaft. When the drive is direct on third or fourth speed, usually the forward end of the squared shaft is reduced in diameter and enters a solid bushing A in the first spur pinion at the front end of the gear box. See the sketch.

Taking Up Movement in the Bearing.

When this bushing wears out, or when the shaft B springs and has to be straightened and trued by grinding, there is no way of taking up the bushing, and if it is several thousandths large for the shaft the natural tendency of the latter will be to slant away from the secondary shaft C as far as the bushing will permit, and thereby have a bearing in the bushing only at its front end until the bushing has worn conical at that end. Under these conditions, the shock of suddenly engaging the clutch might bend the squared shaft at D, where its front journal joins the square. To avoid this possibility the bearings of the first spur pinion may be scraped slightly sidewise toward the secondary shaft, to approximately half the amount of the difference in diameter between the bushing and the shaft entering it. This will enable the bushing to give a bearing to the journal clear up to the squared part of the shaft. Unless this expedient is resorted to it is not safe to tolerate a greater difference in diameter between the journal and the bushing than five to eight thousandths of an inch. It is obvious that the same device of scraping slightly to one side or the other may be resorted to in other places, to bring shafts in line or to compensate for small degrees of wear in the bearings. For example, the after bearing of the squared shaft could be scraped away from the secondary shaft under the circumstances above mentioned. If the car has side chain drive, the bevel gears may be brought square with each other by scraping the two cross bearings in the same way. Timely attention to defects such as those mentioned is usually all that determines whether a car can be said to be in good condition at the end of a year or two of service, or the reverse, for neglect of ills apparently trivial in themselves not only permits them to assume aggravated proportions, but also leads to others that are frequently of a far more serious nature.



How to Remedy the Effect of a Sprung or Disaligned Shaft.

PRESENT STATUS OF AMERICAN MOTOR VEHICLE LAWS

At the recent Buffalo Good Roads and Legislative Convention of the American Automobile Association, Chairman Charles Thaddeus Terry of the legislative board made a most comprehensive address, in which he made clear the present status of motor vehicle laws throughout the country. To the many who were unable to attend the convention his address will prove most interesting, and it is herewith reproduced:

Mr. President, Guests of the Association and Fellow-Members:—Our heartiest congratulations are due to the officers of the American Automobile Association, to its committees in charge of the convention, and to the individual members of the organization, upon the wisdom and foresight which conceived, and the intelligent industry and untiring zeal which have brought to so successful a consummation, the ideas embodied in this national convention.

This is an epoch-making occasion. It is the most signal and significant event which has happened in the history of automobiling in this country. Its influence has already been widely felt, and will be still more widely felt, to the lasting advantage of the industry and the sport in the days to come. The deepest gratitude should be entertained by the user of motor vehicles in every State in this country to the American Automobile Association which has made such a convention as this possible and successful, and most of all is gratitude due, for his indomitable energy and unremitting labor, to that man who has spent his days and nights, in season and out of season, for the upbuilding of this organization, in self-denying devotion to the interests of automobilists—our president, William H. Hotchkiss.

If this convention does not result in a vast improvement in the roads over which and the laws under which the automobilists may travel, it will be because the individual automobilists do not avail themselves of the magnificent opportunity which this occasion affords for stimulus, for knowledge of actual conditions, for education, looking to the betterment of those conditions and for an acquisition of ideas which may be put into operation and worked out in concrete form in the several particular localities where our individual members may happen to reside. The thoughts advanced and the plans evolved at this assemblage must be put into immediate operation and application, else the value of this occasion will be utterly lost. A thought not converted into action is dead. It lies with you to see to it that the force set in motion on these two days shall be unending in its influence for good.

Good roads and fair laws! But the more important of these is fair laws. Without fair laws, good roads are of no use to the automobilist.

You might have throughout the country a system of roads surpassing anything yet devised by man, and, nevertheless, if stone walls were built across them every twenty-five miles, they would be useless as means of intercommunication. Barriers almost as effective as such stone walls have been erected at the confines and within the confines of various States throughout the Union by the enactment of laws which make an attempted use of the highways of the country so difficult and expensive as to amount practically to a prohibition.

There are many natural and inevitable obstructions to the automobile in the use of the highway. There are animals of every nature and description which wander about on the roads and make their passage dangerous, but, of all the creatures which infest the paths of travel the most obnoxious and the most unreasonable by far, to the automobilist, is man, particularly when he is brought together in combination with other men in bodies called legislatures. How much has been done by lawmaking bodies to destroy the natural privileges of users of highways is realized by those who have attempted to use the motor car in interstate travel, but even to them the extent of the attempt, on the part of legislators, to erect this natural right to use the highways into an expensive privilege is not thoroughly understood, nor would it be generally believed, unless the detailed facts were presented to them in succinct form.

As a premise for the deliberations of this session, I present in brief outline the situation, as regards motor-vehicle legislation, as it is at present.

Present Status of Motor Vehicle Laws.

The condition in which we find the motor vehicle laws of the various States of the nation at this time is both intolerable and ridiculous. Intolerable, because it retards the progress and development of the automobile and greatly lessens its usefulness. Ridiculous, because it is hard to conceive how, within the confines of one nation, so many legislative bodies, supposedly made up of the leading men of the commonwealths, could enact provisions of law on the same subject so divergent and contradictory, and at the

same time absolutely without apparent purpose, except to harass and restrict a certain class of citizens.

In thirty-one States of the nation, registration of motor vehicles is required, nearly every requirement being different from the other, the fees ranging from 25 cents to an annual fee of \$25, and the authorities being in most instances the Secretary of State, and in some the State Boiler Inspector.

In six States, local authorities may each require registration and licenses in their particular locality.

In ten States, a license to operate, in addition to registration, is required, with annual fees ranging from \$1 to \$3.

In eight States, the registration and license laws of the other States are entirely disregarded, and non-residents passing through are again required to register their vehicles, pass an examination as to the competence to operate, and procure a license.

In four States, non-residents, exempt from the registration provisions of State laws, are not exempt from the registration and license requirements, enacted by local authorities.

In seven States, non-residents are exempt for periods of time, ranging from twenty-four hours to sixty days.

The most striking illustration of the ridiculous and intolerable State enactments affecting non-resident automobilists is to be found in the Eastern States.

An automobilist, desiring to go from New York to Washington in a 30-horsepower vehicle, in addition to registering and paying the fees in the State of his residence, must register his vehicle and procure a license to operate in the various States through which he must pass.

In the State of New Jersey, he must register his vehicle and pay a fee of \$10, give to the Secretary of State power of attorney to accept service of process for him, pass an examination, procure a license to operate, and pay an additional fee of \$4.

In Pennsylvania he must again register his vehicle and pay a fee of \$3, pass an examination, and procure a license to operate.

In Maryland, the same process must be repeated, with a fee of \$3.

On arriving in the District of Columbia, he must register his name and address with the Automobile Board within 24 hours.

Such a state of affairs needs no characterization.

In matters of speed and rules of the road, the automobilist is not only harassed by divergent and contradictory State laws, but in most States he is subject to restrictions imposed by local authorities of every political and governmental division of each particular State. The speed limitations range from four to twenty miles an hour, changing according to the locality, and the automobilist, without the slightest negligence or danger to other users of the highway, may violate the speed laws six or eight times in a run of sixty miles.

The speeds allowed at intersections, crossings, bridges, and curves, range from four to six miles an hour; in cities and towns and built-up sections eight to ten miles an hour.

In seventeen States, as in New York, the maximum of speed allowed is twenty miles an hour, with limitations, ten miles in closely built-up sections of a city or village, fifteen miles in other portions thereof, and four miles on curves, bridges, and steep descents, varying in different States.

In six States, twenty-four miles an hour is the maximum.

In six States, fifteen miles an hour.

In one State, twelve miles an hour.

In one State, eighteen miles an hour.

In one State, eight miles an hour.

In one State, a reasonable and proper rate.

Only Two States Have Sane Laws.

There are only two States at the present time which have reasonable or sensible speed limitation provisions in their motor vehicle laws, and they are the States of Connecticut and Florida, which require that the rate of speed should be reasonable and proper, the effect of the Connecticut provision being partially destroyed by the maximum limitation of twenty-five miles. The other States have enactments which cannot be enforced or which make comfortable motor vehicle travel quite impossible.

It will be seen that if the motor vehicle is to take its proper place as a means of general travel and interstate communication, this intolerable condition must be changed and some basis of uniformity in legislation arrived at. An automobile is a power and force extending national development and automobilists should not suffer its usefulness to be restricted by laws enacted, not for the protection of the people of the State, but, as in New Jersey, for the sole purpose of manufacturing an additional source of revenue. This condition will last only so long as the automobilists themselves acquiesce.

I have said that of all the creatures which infest the highways and make use of automobiles disagreeable or inconvenient or next

to impossible, men are the worst. Cows and horses and pigs and chickens are bad enough, but men are worse. A cow can only be slow and stupid—like a cow; a pig can only be a menace by making you think he is going to run into your way when he never does—like a pig; a horse can only become needlessly frenzied with fear and break his harness and injure everyone in his immediate neighborhood—just like a horse; a hen can only be the rattle-brained thing she is, and insist on showing how dangerous a motor vehicle is, by throwing herself in front of it and getting herself killed—like a hen; but, unhappily, men in some instances are all of these creatures together—sometimes they are in automobiles; sometimes they are walking or driving horses on the highway; and—sometimes they are sitting in legislatures.

Provincialism Rampant in State Legislatures.

The present motor vehicle laws are the last, best demonstration of the provincialism of several of our States. They are the masterpieces of men of so narrow an outlook that they cannot see that anyone lives behind the mountains which confine their hamlet, their county, or their own commonwealth. Those legislatures which enact motor vehicle laws destructive of the rights of the residents of other States to engage in interstate travel hide behind the high-sounding phrase, "States' rights," which, it will be observed, is utterly meaningless in this connection. Such laws spring not at all from an observation of States' rights, but entirely from a narrow provincialism which refuses to consider the rights of sister States.

And let us not be deceived by the cry of these legislators that the hostile automobile legislation which they enact is demanded by that much-abused class called "farmers." There is not a word of truth in it. No one who has given thought to the situation, has found the "farmer" anything but open-minded, reasonable, fair and ready to be instructed as to the facts and persuaded as to the natural conclusions to be drawn from them. No, the trouble lies not with the farmers. It lies rather with the cheap politician, the demagogue, who is ever ready to make capital out of the nearest available material, and who, whether he asserts it in so many words or not, acts upon the assumption that he is the common people, the sovereign "who controls the roads, the deputies, and the future of political parties." He it is, and not the farmer, who instigates the enactment of these stupid, senseless laws. Of course, one does find from time to time in every community, whether it is the city or the country, individuals who, because of some real or fancied indignity at the hands of an automobilist, are ready to curse progress and science and everything and everybody, and to rush to his senator and assemblyman and demand that the automobile be driven from the highways. But such incidents have become, in this day, not the rule but the exception. Whatever may have been true in former days, it is no longer true that bad automobile laws come by any popular demand. They are born of the imaginings of some one or more legislators, often for a political purpose.

Take, for example, New Jersey. Its automobile policy is as narrow as the geographical confines of the State itself compared with other States. It has the most unreasonable and unfair automobile law of any State in the Union, and it came, and exists, not because of any desire on the part of the people of the State, but as a necessary adjunct to the political aspirations of a single individual in the legislature.

Some Bad Laws Due to Misconception.

It is amazing how far behind the times many legislators have fallen. Their failure in many instances to enact reasonable, sane, and effective automobile laws, has been due to a misconception of the present status of the motor car under modern conditions. Their error goes to the root of the matter. They have utterly failed to observe that the automobile is no longer a mere instrument of sport, which may be carelessly treated as of no particular moment; which may be legislated off the highways if its use proves disagreeable to some narrow-minded people. They have not noted the tremendous extent of its use, nor the varied purposes which it serves—in short, they have not opened their eyes to the fact that it has become an important factor in the commerce of our country, and that in ten years it will become the most important vehicle of trade and transportation. It is no longer a mere luxury—it is a necessity. It performs all the functions of the horse and vastly more. In important respects, it will be superior to the railroad as a means of interstate communication and interstate trade, because, while the railroad is confined to the narrow limits of two steel rails and straight lines of travel and infrequent stopping places, the motor car reaches to the most remote corner, is confined to no particular line of travel, and can stop when its driver pleases.

As the advent of the railroad train absolved the traveler from dependence on the post chaise and the stage coach, so the development of the motor vehicle will free him from the discomforts and inconveniences of the time-tabled railroad.

It is thus seen how unwise, how short-sighted, and how puerile it is for legislators to suppose that they may, at will, restrict and limit and needlessly embarrass the widespread use of this vehicle. It is irresistible progress against which they are pitting

their puny strength. They are securing for themselves only ignominy and ultimate defeat, which is not now so far in the future.

The use of motor cars has only just begun. The science of their manufacture has not yet reached its maturity. The numbers of them in use will be multiplied year by year, until the horse will disappear—except as it is used for sport or pleasure—and be as rare a sight upon our highways as the automobile ten years ago.

Wake up, legislators! The automobile has gone by you while you were wondering when it would come. You cannot ignore it—neither can you deny it the rights which its importance demands.

Appeals to Prejudice No Longer Successful.

There was a time, not so many years ago, when the misdeeds and the recklessness of the few among automobilists were made the basis for the hue and cry against all of the class, a cry which found its echo in hostile, hateful, vengeful automobile legislation in many States; but that time is past, and those statutes have for the most part been wiped off the statute books. Nowadays, anyone who attempted to make such an appeal to passion and prejudice would be calmly answered by the facts. Experience has shown that the great majority of automobilists are law-abiding, careful users of the highways, considerate of the rights of others, and that the real reason why there still exist a few who wilfully disregard the law and the decencies of the highway is, not because the highway laws were not right, but because the authorities were slothful in their enforcement of them. The remedy is not in other or different laws, but in the enforcement of the plain, simple, common highway rules.

To enact laws which impair or destroy the rights of the many, in order to reach and punish the few, is distinctly un-American. It is directly contrary to the basic principle of our jurisprudence, which holds that it is better that a thousand guilty persons should escape than that one innocent should suffer. Such States as the State of New Jersey have reversed this doctrine and have framed their law upon the dogma that, better a thousand innocent persons shall suffer than that one guilty should escape. The bare statement of this policy carries its own sufficient condemnation.

Highways Are National.

For all purposes of interstate travel highways belong to the citizens of the United States, with the absolute right to travel thereon and to make ingress and egress from the various States, unhampered by the narrow restrictions sought to be imposed by provincial enactment. The various and varying motor vehicle laws of the forty-five different States of the Union, oftentimes characterized by unreasonable, harsh, unnecessary and galling limitations, would, if they were persisted in, put an end to the use of the automobile.

It would seem that, if we are really a nation, such a state of things would be impossible, as it is intolerable. The remedy lies in either one or both of two directions: Either, first, the enactment of a simple, uniform motor vehicle law in all of the States; or, second, the enactment of a Federal statute which will be controlling in all parts of the country. The remedy, will be administered; the reform, it is coming—indeed, it has, to a large extent, already come. Several of the States have at the last or previous sessions of their legislatures substantially enacted the uniform motor vehicle law proposed by this association. Look at the law of Connecticut, at the law of Rhode Island, and at the law of Ohio.

The Federal Law.

The Federal Automobile Registration bill, drafted and presented to Congress by this association, will become the law of the land. There is not the slightest question of it. It is recognized to be right and expedient by everybody, and no one, who has given the subject adequate study, and whose mind works clearly, denies the constitutionality of the measure. If a man may walk or drive, or sail in his steam yacht, through various States without being retarded and restricted at the boundary line of each State by registration and license laws, why may he not likewise travel through the various States in a motor vehicle? If it be said in answer that the residents of the State require his identification for their own safety, the answer is that the registration of the motor vehicle under this Federal law will suffice, as it has always done in the case of steam and sailing vessels while using the waterways of the nation. Under this bill, the only restriction upon the various States is that they shall not retard and impede motor vehicles engaged in interstate travel by useless and unnecessary registration and license requirements.

Gentlemen, the worst of the battle is over. The common sense of our people is again asserting itself, even to the confusion of some legislators who do not wish to be convinced. The Uniform State Motor Vehicle Law is on the way and at no very distant date will be an accomplished fact. The Federal Automobile Registration Law, when it has been set upon the statute books, as it inevitably will be, will prove to automobilists the boon which it was intended to be, and will answer the criticisms of the last doubting obstructionist. In short, a better, brighter day is dawning in automobile legislation in all the world—and New Jersey.

TOURING AND PETTY PERSECUTION IN FRANCE

PARIS, July 30.—It is a period of contradictions in France just now, the country treating automobilists on the one hand with a generosity and largeness of view altogether without precedent, and on the other subjecting them to a series of petty annoyances always dangerous from their ability to develop into organized persecution. It is a sign of the times that the Minister of Public Works should take the initiative in calling an international conference to discuss new methods in road building and traffic control as the result of changed conditions of locomotion, and it is but further proof of the foresight of the same Minister that he should be prepared to spend thousands of dollars for the entire rebuilding of eight roads leading from the capital to all points of the provinces.

But there is a dark side to the picture in the mischievous activity of the police, especially in Paris, and the rampant "Protective Association Against the Excess in Automobiling." Automobilists always have been kept up to a high standard of conduct in the city of Paris, but as Chief of Police Lepine knew his business and took no delight in applying an arbitrary speed law, no one found fault with his regulations against smoky exhausts, the use of sirens and headlights within the city limits. Lately there has been a change for the worse, and instead of attention to the wise recommendation that safety or danger in speed depends not on a fixed rate of travel, but entirely on circumstances and places, there is a tendency in the suburbs to trap cars passing along certain well-traveled roads, whether transgressing legal limits or not.

There is also a nine-year-old regulation which declares that no driver shall leave his car until he has taken all precautions against accidental starting and until he has stopped all noise. All was well until some officious cycling policeman drew up a procès-verbal against the driver of a town vehicle for leaving his engine running while the car was unattended. Within two days half a dozen more were treated in the same manner and a cry of indignation went up. When it was asked in what way the gentle hum of a modern motor could be injurious, the righteously indignant were given a copy of the law to read.

Day in Prison May Be Penalty for Smoky Exhaust.

As a protection for drivers of automobiles, the Association Générale d'Automobile has decided to place a number of private agents on the streets at all important points, to give warning to all those who, intentionally or otherwise, are in danger of falling into the hands of the police. Should the registration numbers be dirty, exhaust smoking, rear light out or in danger of going out, or should the driver keep his headlights lit after passing the city wall, use his siren or show too much speed at dangerous points, the road agent will give him a kindly warning which should enable him to escape an annoying fine or a still more annoying day in prison. Under the new régime a driver of an automobile who has been fined once for any infringement of the law is condemned to twenty-four hours in prison for the second offense, even though it may be the harmless one of emitting too much smoke or driving without a

rear light. The wise ones have learned that the only way to escape acquaintance with the inside of a cell is to shun the courthouse as they would the plague, when the first procès-verbal is served. They may be condemned to a fine, but a condemnation in the absence of the accused does not count in the scale which leads to the police cell. It is one of the intricacies of a legal scheme which a layman would not attempt to explain.

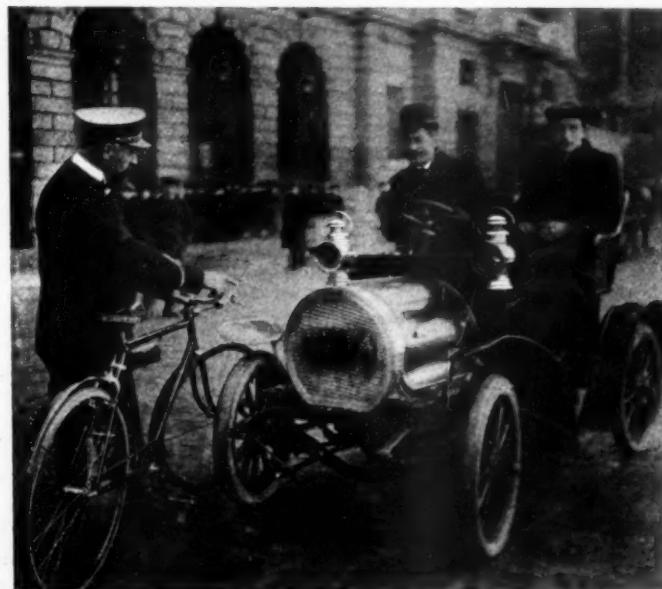
Far more dangerous than the petty prosecutions of overzealous police officials is the activity of the Protective Association Against Excess in Automobiling, founded by Colin, one of the best-hated men in France. Public lectures have been held in various parts of the country with a view to stirring up animosity against the automobile, Parliament has been assailed, and a bill proposed by which the automobilist should in every case be morally and financially responsible for every accident in which he may be involved.

So active has been the association that leaders of the industry, including the president of the national club, have publicly taken up arms against the movement. Now every anti-auto meeting in the city is attended by an able speaker versed in questions of law, who "heckles" the lecturer when the time for public discussion arrives. One of the manufacturers' associations has entered into the fray by the publication of thousands of posters showing, by a series of pictures, how the poorly paid bicycle mechanic has risen to a comfortable position in life through the automobile industry, and how he will fall back to poverty if the anti-autists are allowed to pass laws prejudicial to the spread of automobiling, with its numerous benefits.

Some provincial clubs are doing useful work by publishing every month, by means of posters and advertisements in the newspapers, statistics on the number of accidents caused by horses and automobiles. The Sarthe Club has a table which shows that in its department for a period of 76 days there were 50 accidents caused by horses, 9 deaths and 45 persons injured, compared with 3 accidents, no deaths and 3 wounded by automobiles. During the period preceding the Grand Prix, when automobile circulation was intense, there were no fatal accidents in the districts, while the average annual death roll in that district alone from horse accidents was 40 to 50. The figures being sent forth broadcast and backed up by undeniable proof, public opinion cannot but be favorably influenced.

Government Has Big Schemes for Perfecting Touring.

How the authorities are fostering the spread of automobiling is a pleasanter and more interesting story. The development of both commercial and pleasure automobiling will probably in the future be influenced as largely by road conditions as by the efforts of the manufacturers to produce mechanical masterpieces. Other things being equal, the country with the best road system will be the one to reap the greatest reward. At any rate, this was how Minister of Public Works Barthou looked at it when he decided to hold an international road conference this year. The first meeting of the organizing committee has been held in Paris, when the Minister announced that their ob-



Arresting Driver for Using a Number That Has Become Worn and Somewhat Weather-beaten.

ject was to adapt the present road system to new conditions of locomotion and save the highways from the destruction which was bound to follow if methods of an earlier age were applied to conditions of the twentieth century. They had done much in their own country to improve highways, but other nations had not been idle and it was imperative that they should get together and work out, from the fund of common knowledge, the systems which are best suited to new conditions of travel that now obtain so very generally.

Continental Europe is naturally primarily interested in the road conferences, for in addition to improved road surfaces and the suppression of the dust nuisance, they may by unison perfect plans for uniform road regulations and control, which will be of inestimable value as the highways rise to a position rivaling the railroad as arteries of communication. But America and other distant countries should obtain information from the experience of other countries which will be of inestimable value in the building up of her own road system and the remodeling of existing routes. It is especially important that the work of pioneers should be closely watched at a time when the supremacy of macadam appears likely to be lost for roads destined for mechanical traction.

Two Hundred Miles of Granite Paved Road Around Paris.

Discussions on what roads should be do not exhaust the activities of Minister Barthou. As a New Year's gift to automobilists he has promised the construction of eight main roads leading out of Paris to different points in the provinces, to be built on the most scientific plans and be absolutely dustless. As every tourist who has endeavored to enter or leave the French capital is aware, roads radiating from Paris are the worst in the country, the majority of them being built of rough, ill-laid paving stones and the minority consisting of badly-worn macadam. At present there is only one main road out of the capital which can really be regarded as good, the others being in a disgracefully poor condition. A chauffeur acquainted with all the highways and byways of the city reaches the open country by devious routes impossible to the stranger, who falls a victim to the forty-mile belt of pavé.

The eight automobile highways will be existing roads entirely remodeled. There is an excellent example of how this will be done in the Avenue de Neuilly, forming a continuation of the famous Avenue de la Grande Armée. Though laid perfectly straight and of excellent width throughout, automobilists shun this highway into Normandy, for its surface is a villainous pavé which would shake loose every nut on the car and make

short work with springs. Consequently the highway which has seen the proud march of armies is now deserted by all but the wheezy steam street railroad and an occasional cyclist who picks out a track on the sidewalk.

When the old pavé has been pulled out, a cement bed will be laid and on this will be formed a surface of small granite blocks, considered after extensive experiments to be the best material for a highway intended for mechanical traction. A cheaper method of construction would have been cast composite blocks, formed of stone and cement, but experiments showed that it wore rapidly, generated dust and in consequence would give a muddy surface in wet weather. The granite will be obtained from Norwegian quarries, cut to required size by special machinery and shipped at a low price as ballast. It is believed that this will give a perfect surface, which, if horses could be removed from the highway, would be always free from dirt and naturally dustless and mudless. From the same Porte de Neuilly two other roads constructed on the same principles will start out for other parts of the provinces; in all there will be eight granite paved automobile roads giving egress from the walled city to points north, south, east and west. Among those coming in for improvement is the old cobblestone royal road from Paris to Versailles, passing through Billancourt and crossing the river at Sevres. This is at present abandoned to the light railroad and market carts, chauffeurs preferring the circuitous hilly road above Saint-Cloud to the jostling received in the valley. In addition to the radiating highways, there will be a granite-paved circular road varying from ten to twenty-five miles from the city limits, forming a belt around the town and intersecting every road. Thus a tourist arriving on some by-road between two of the paved highways will only have to travel along the circular road a few miles to meet a perfect track carrying him into town.

Credit for this interesting road making scheme lies about equally with the Touring Club of France and the Touring Commission of the Automobile Club of France, the heads of the two bodies working out the details of the scheme, making experiments in connection with road engineers and using all their influence with the Ministry. Since the scheme has been officially announced the A. C. F. has voted a subvention of \$6,000 towards the work. In three years the scheme will have been fully completed and entrance to the Ville Lumière will be a pleasure instead of a purgatory. Experts will watch with interest the experiment of granite paving for a network of roads open to heavy traffic of all classes, as this is the first time that road construction of this kind has been planned for auto use.

SUIT INVOLVING DARRACQ DISSOLUTION.

PARIS, Aug. 1.—There are possibilities of a complete revolution in Franco-British relationships if a recent action brought against the Darracq firm meets with success. At the Tribunal of Commerce, this week, three of the most distinguished lawyers of France, acting for a group of persons whose names have not been made public, petitioned for the dissolution of the A. Darracq Company, Limited, on the grounds that the headquarters of the company were in London while the factory was in France. M. Poincaré, a former Minister of Finances, representing the Darracq Company, opposed the motion. Judgment was deferred.

Within the past few years a large number of prominent French automobile firms have been converted into British limited liability companies, on account of the better hold they would have on the British market and various administrative advantages.

Officers of the Darracq company, interviewed on the petition, declare emphatically that the whole affair is one of private jealousy, and maintain that there is nothing on the statute book preventing a French factory having its official headquarters in another country. The head of a rival firm, having large interests in England, is declared to be responsible for the proceedings.

FRENCH DRIVERS MUSTN'T RUN AWAY.

PARIS, Aug. 1.—To run away from the scene of an accident, or in any way to seek to evade the responsibility of an accident in which he may have been involved, will in future render the offender liable to from six days to two months in prison and a fine of 16 to 500 francs. The new law applies not merely to drivers of automobiles, but to those in charge of any kind of vehicle whatever, and is applicable to the whole of France. Its effect will be to make it impossible for any driver, whether he be in charge of a push cart or a racing automobile, to escape from an accident in which he has been involved and for which he may or may not be responsible. Rather than risk long and costly legal proceedings it has become too common for French automobile drivers, as well as drivers who do not sit behind a wheel, to pass on their way without stopping to inquire what damage they have caused. The new law, in no way changing the original statute on civil and penal responsibility, will naturally have the effect of checking irresponsible driving by rendering the practice of running away in order to escape the consequences of an accident of any nature, one not to be indulged in indiscriminately by chauffeurs.

CHICAGO NEXT WINTER WILL ONLY HAVE ONE AUTO SHOW

HERE will be only one automobile show in Chicago next winter. The show committees of the National Association of Automobile Manufacturers and the American Motor Car Manufacturers' Association Tuesday morning conferred in New York City and reached an understanding relative to the Chicago show situation. It will be remembered that the A. M. C. M. A. was not exactly satisfied with the previous manner of allotting spaces, and it was made known that unless its members received more consideration the association might conduct its own exhibition.

Tuesday morning the show committees of the two organizations held a session. The N. A. A. M. committee includes Thomas Henderson, Windsor T. White, George Pope, W. E. Metzger, C. C. Hildebrand and S. A. Miles, the general manager. The A. M. C. M. A. committee contains Benjamin Briscoe, H. O. Smith, R. M. Owen, S. H. Mora and Alfred Reeves, the general manager.

In accordance with the resolution adopted at the July meeting of the N. A. A. M. show committee a new method of space allotment was submitted, and this met with acceptance from the A. M. C. M. A. committee. Briefly stated, the spaces are divided into four classes, and the selection of positions is to be determined by lot. Providing there are more applicants for spaces than can be accommodated in any class, the executive committee of the N. A. A. M. will classify the applicants, and in so doing N. A. A. M. members will have first choice, and

A. L. A. M. and A. M. C. M. A. members will be given second choice, though the committee will be guided further by the number of models produced by the applicants, the number of earlier shows at which the applicants have exhibited, and the size of the space occupied thereat. The arrangement practically means that N. A. A. M. members, whether licensed or unlicensed, will receive equal consideration in the allotting of exhibition spaces.

The regular monthly meeting of the N. A. A. M. executive committee, held in the afternoon, considered other matters, and granted sanctions for national shows, the A. M. C. M. A. exhibition at the Grand Central Palace being for the first week in January, and the A. L. A. M. show in Madison Square Garden being for the third week in January. A special committee appointed to consider and recommend a standard form of rim presented a detailed report, which was adopted, subject to satisfactory commercial details. The facilities of the transportation department of the N. A. A. M. will be extended to the A. M. C. M. A., in consideration of the agreement on the part of that body to cooperate in the work. Arrangements with the Motor and Accessory Manufacturers are still pending.

Present at the meeting were: S. T. Davis, Jr., W. T. White, Charles Clifton, Thomas Henderson, W. E. Metzger, Benjamin Briscoe, H. O. Smith, L. H. Kittridge, R. D. Chapin, W. Mitchell Lewis and S. A. Miles, and, as members of special committees, M. J. Budlong and G. W. Bennett.

POPE COMPANY TO REORGANIZE WITH \$6,500,000 CAPITAL

HARTFORD, Conn., Aug. 3.—The long-predicted reorganization of the Pope interests that was formally announced for the first time late last week, is now under way. Briefly stated, the plan is to eliminate the common stock of the old corporation entirely, capitalize the company's indebtedness to a certain extent, and confine manufacturing to the Hartford and Westfield plants, the latter of which is devoted to bicycle making. Articles of incorporation may be asked for under the laws of New Jersey or in the company's home State, the projected capitalization being \$6,500,000, of which \$2,500,000 is to be preferred stock and the remainder common. A small coterie of New York capitalists was apparently responsible for bringing about the reorganization at this time, a committee appointed from their number consisting of Harry Brommer, of Hallgarten & Company; Frederick H. Ecker, treasurer of the Metropolitan Life, and August Heckscher.

Not including the amounts due to companies, the capital stock of which is owned by the Pope Company, the present indebtedness of the latter totals \$1,640,000. There is now preferred stock of the face value of \$2,391,000, and second preferred of the value of \$8,625,100, outstanding, and the plan of reorganization is offered to the holders of such stock, based upon the deposit of their certificates with the Central Trust Company of New York. To actually begin business, notes to the amount of \$800,000 will be issued in such amounts as the committee above named may deem necessary. These notes will be dated August 1, 1908, and will mature as follows: August 1, 1909, \$267,000; August 1, 1910, \$266,000, and a like amount one year later, the interest being at 6 per cent., payable semi-annually.

It is understood that the same personnel will be in control, namely, Albert L. Pope and Colonel George L. Pope, Wilbur C. Walker and Charles E. Walker.

PLANS FOR THE MAXWELL-BRISCOE AND BUICK COMBINE

NEGOTIATIONS for the consolidation of the Maxwell-Briscoe Company, of Tarrytown, N. Y., and the Buick Motor Company, of Jackson, Mich., which for some months have been more than merely whispered as being in progress, have reached now such an advanced stage that it is announced that the International Motor Company is in process of formation, with a capital of \$25,000,000, made up of \$11,000,000 common and \$14,000,000 preferred stock.

Preferred stock to the amount of \$900,000 is shortly to be put on the market at 97 1-2, with a share of common stock as a bonus, by the underwriters of the scheme, who are connected with J. P. Morgan & Co.

The attorneys engaged in the formation of the new company are Ward, Hayden & Satterlee. The junior partner is the son-

in-law of J. P. Morgan. Another son-in-law of the noted financier, W. P. Hamilton, and W. P. Horn, a member of the staff of the banking house in question, are interested in the formation. So is Otto J. Merkle, of No. 40 Wall street, New York, who has back of him the Maxwell-Briscoe interests.

The holders of Maxwell-Briscoe preferred stock will receive two shares of preferred stock of the new company and one share of common stock for each share of the original preferred stock. At present \$660,000 preferred stock out of \$750,000 authorized is outstanding, and \$660,000 common stock out of \$750,000 authorized is also outstanding.

The prospectus issued estimates a possible production of 13,000 cars this year, including those already finished, and places the 1909 product conservatively at 15,000.

THE AUTOMOBILE

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CLASSIFYING THE AUTOMOBILE BUYER.

Unconsciously, but none the less surely, the automobile buying public in this country has gradually been classifying itself, until now it may be said that the process has reached a point where three sharply defined divisions are discernible. Starting at the upper end, the first of these will naturally be found in that class of buyers who have made the 60 to 80-horsepower touring car a commercial possibility. This is the type of buyer whose needs can only be compassed by the seven-passenger touring car, and who invariably employs a driver. The class is a substantial one, and doubtless will always play a prominent part in the American demand, for, though the number of such cars may be relatively small, their value forms a very considerable proportion of the year's total when figured in dollars and cents. Next in order comes that very much larger class, the needs of which are met by the five-passenger touring car or roadster of half the horsepower, and which may, or may not, have a professional driver to look after it, according to the means or inclination of its owner. At the present writing, this is doubtless the most important class of the three, all things considered, the next step below it consisting of that legion of auto owners who go in for light runabouts and are always content to act as grooms to their own machines.

Judging from the announcements of those manufac-

turers who have already made their plans for 1909 public, it is quite apparent that the business of building automobiles has been classifying itself at the same time, and that not a few makers have decided to appeal to that very large and constantly growing class which we have designated as the second, or that intermediate the two extremes. It appears quite probable that this class is destined to predominate, as it is not only constantly being added to by the influx of new entrants, but also receives a very substantial addition in the shape of recruits from the class below it, as the light runabout is frequently but a stepping-stone to something more ambitious.

The period of transition through which both automobiles and automobile buyers have been passing, brings forth as a result a machine, the coming of which has been predicted for several years past. Why it did not appear on the scene earlier in the day is but one of the many puzzling queries that have surrounded things automobile ever since the inception of the latter. Evidently the time was not ripe, for many automobile builders were perfectly aware of the requirements and not a few possessed adequate facilities to have made what is now considered one of the greatest developments of the day a possibility two or three years ago. Very early in the day, when the superiority of the foreign-made machine was self-evident, the question was universal "Why do American manufacturers not give us what we want?" and their reluctance to part with exclusive and self-made standards of design at that time, evidently found its successor in the hesitancy which heretofore has characterized efforts to bring out medium weight and powered machines of the types that are now appearing.



SIMPLIFYING THE COOLING SYSTEM.

Simplicity may be taken as a synonym for the smallest number of parts, and, bearing this in mind, the two-cycle motor with thermo-siphon cooling may be held up as an ideal where the water-cooled engine is concerned. But as yet, the two-cycle principle has not been accorded that favor which its possibilities deserve, so that simplifying the motor in this respect resolves itself into a question of pump or no pump? That the pump can well be dispensed with is amply demonstrated by the great number of successful cars on which the water is circulated on the thermo-siphon principle, and there appears to be no good reason why this should not be more generally adopted, if, indeed, it does not come into practically universal favor. It has been shown that the extra quantity of water necessary is a negligible factor when the advantages of the system are taken into consideration.

The present trend of design is leaning more and more strongly toward the adoption of the thermo-siphon principle and the consequent elimination of the auxiliary that it renders unnecessary, as the practice of casting three- and four-cylinder units in one piece permits of making a jacket in which the water may circulate much more freely than in the single or even the twin-cylinder casting. Another great advantage of combining the cylinders in a single unit in the case of a four-cylinder motor, or two units in the case of a six, is to be noted in the greatly simplified arrangement of the small amount of piping that is necessary, this being a benefit that extends to the elimination of the exhaust and inlet manifolds as well.

SIX-CYLINDER CHADWICK ENTERED IN VANDERBILT CUP RACE.

THE Vanderbilt Cup Commission has received from L. S. Chadwick the entry of a six-cylinder Chadwick car for the Vanderbilt Cup Race. All the experts at the Chadwick Engineering Works, Pottstown, Pa., have been turned loose on the racer and Mr. Chadwick expects to have it out on the new cement racing highway during the first week of October. This will give the driver, Willie Haupt, ample opportunity to learn the course before the elimination race, October 10.

The Chadwick racer will be a stock model in many respects, similar to those which have been so successful this year in hill climbs and other contests. It carries the standard six-cylinder motor, with cylinders 5 inches in bore by 6 inches stroke; the change gear gives four speeds forward, controlled selectively, and drives through side chains enclosed in special chain cases. Wheelbase is 112 inches, and the tires are 34x4-inch front and 36x4 1-2-inch rear. Equipped with a special racing body it will weigh 2,550 pounds. In cylinder bore and weight this car conforms to the so-called international rules of the Grand Prix, and its makers are anxious to see how it will compare with the

winning Mercedes, driven by Lautenschlager in the Grand Prix, and which Robert Graves has bought and entered in the Vanderbilt.

Those who follow the racing game will remember that the Mora Motor Car Company, Newark, N. Y., has already entered a six-cylinder racer, and still another car of this type is expected to carry the colors of the Acme Motor Car Company. The latter does not intend to make the usual mistake of companies new to this work of finishing its car too late for any preliminary road work. The engine has already been assembled and tested in the factory at Reading, Pa., and found satisfactory, and it is expected that the complete car will be out on the roads of Berks county by August 15. Specifications include a six-cylinder engine of a bore slightly less than 5 inches and 5 inches stroke; the wheelbase will be rather shorter than the six-cylinder cars of this make already seen on the track, and in spite of the larger engine the weight has been decreased. Attention is being paid to quickness in picking up speed, as the makers believe that this quality will have an important effect on the success of the car in the race.

THAT INEFFECTIVE FOREIGN BOYCOTT AGAINST VANDERBILT

PARIS, July 30.—Since announcing an official boycott of the Vanderbilt Cup contest, the attitude of the leading members of the French Racing Board appears to be one of complete indifference regarding the quarrel between the American Automobile Association and the A. C. A. Instead of that righteous indignation which in certain quarters we are given to believe exists in the French Club against the action of the Vanderbilt Cup commission in announcing its race under independent rules, the Frenchmen declare, in substance, that they have put their protest on record and have no desire to be troubled further in the matter. The French Racing Board has enough troubles of its own on hand to prevent it having any very strong feelings on a quarrel between two automobile bodies several thousand miles away.

It is freely recognized in Paris that the boycott is more theoretical than practical. To put it in the vernacular, "it is for to laugh." Every manufacturer, though he voted the protest, is aware that if he desires to enter the Vanderbilt Cup race there is nothing whatever to prevent him. The fear that the French cars would be disadvantaged, which was doubtless felt by certain

constructors a few months ago, is no longer a bogey. Instead of being slower than last year, the cars have proved, in a brutal manner, that they are not only faster, but too fast, the French failures being due to speeds that tires could not maintain.

Speaking to one of the leading officials of the Commission Sportive, the representative of THE AUTOMOBILE asked what steps would be taken if French firms sold their cars to be raced by private owners, or handed them over to their American agents to enter. Without hesitation, the reply came: "We could do nothing whatever in such a case." It is well known that negotiations are pending, and may be completed before this arrives, for the sale of the Mercedes victorious in the Grand Prix and for the transfer of the services of the winning driver to an American sportsman, who would enter them in the Vanderbilt race. Although Germany was one of the protesting parties, her officials can find no grounds whatever for objecting to such a course. The same is also true of those French firms who feel they would like to again compete for the cup won three times in succession. William K. Vanderbilt, Jr., is still in Paris.

METROPOLITAN TRADESMEN FORM RACING ASSOCIATION

AT a meeting held in New York, Friday, July 31, a local racing organization of tradesmen was formed, to be known as the Metropolitan Motor Association. Its charter membership is made up of three importers, three manufacturers and two local dealers who have been prominent in racing in the metropolitan district. The officers are: President, C. F. Wyckoff; vice-president, E. R. Hollander; treasurer, Harry S. Houpt.

Those who were present at the meeting and make up the charter membership follow: C. F. Wyckoff, of Wyckoff, Church & Partridge, Eastern sales agents of the Stearns; E. R. Hollander, Auto Import Co.; H. A. Lozier, Lozier Motor Co., maker of the Lozier; C. A. Singer, Palmer & Singer Mfg. Co., maker of the "P. & S." and selling agent of the Simplex; Paul La Croix, American representative of Renault Frères; C. M. Hamilton, Isotta Import Co.; Harry S. Houpt, New York agent of the Thomas; F. E. Moscovics, Allen-Kingston Co.

The objects of the association are stated to be:

First—To support only such contests held in and within 75 miles of New York City which have for their first object the stimulation

and growth of public interest in automobile events which shall benefit the sport and industry as a whole.

Second—To eliminate inexperienced drivers and officials.

Third—To regulate the number, length, and condition of contests.

Fourth—To safeguard the interests and safety of all contestants and the public by rigid supervision of courses.

In its official announcement the association declares that "the statement recently made in some of the New York papers, that this organization was to be formed to oppose the A. A. A. or A. C. A., is entirely erroneous, and is denied by the president of the association. It is hoped that some amicable arrangements can be arrived at whereby all interests, including clubs, associations and contestants, can get together on a proper basis without friction."

The association plans to promote a race meet at the Brighton Beach track on or about Labor Day. A program of at least six sprint contests is proposed, winding up with a 24-hour race. Fred J. Wagner has been secured as manager. A broadening of the membership of the association is contemplated.

CLUBS GROWING STRONGER AND MORE NUMEROUS

NEW JERSEY CLUBS CALL A CONVENTION.

NEWARK, N. J., Aug. 5.—New Jersey is to have a good roads legislative convention of its own. It is planned to hold it at Atlantic City early in September, probably 17-18. The cooperation of the farmers, as represented by the New Jersey State Grange, is to be asked. In view of the alliance completed at the Buffalo convention between the A. A. A. and the National Grange, the prospects of similar cooperation between the automobilists and farmers in New Jersey are bright.

The present unreasonable state motor vehicle law, which this year is keeping so many automobilists out of the state, to the great loss of hotel keepers and general business, will also come up for discussion, with a view to amendment along sane and just lines, at the next session of the legislature.

The decision to call the convention was made by the Associated Automobile Clubs of New Jersey at their meeting at Atlantic City last Saturday. It was further resolved to make every effort to organize autoists in localities where no clubs now exist, to



W. C. Crosby.

President Associated Automobile Clubs of New Jersey.



H. A. Bonnell.

Secretary Associated Automobile Clubs of New Jersey.

the end that the state body may be strengthened and carry with it the weight of larger numbers and present a more general representation of the counties of the state at the convention and before the legislature next winter.

There were several changes made in the official slate at the meeting that will give the New Jersey Automobile and Motor Club not only the largest motoring organization in the state, but also one of the largest in the country, the leadership in the administration of the state body. W. C. Crosby, vice-president of the club in question, was chosen president in place of George W. Post, of the North Jersey Automobile Club, of Paterson, resigned, and H. A. Bonnell, former secretary of the same club, a man of national reputation as an organizer and executive officer, was persuaded to get into harness again and assume the office of secretary-treasurer.

The following committees were appointed:

Legislation—W. C. Crosby, J. H. Edwards, J. H. Wood, A. H. Darnell, J. E. Gill.

Membership—Dr. F. C. Ard, J. E. Gill, H. A. Bonnell.

Good Roads—J. H. Edwards, J. H. Wood, Warren Somers.

Press—W. E. Edge, W. F. Sadler, Jr., A. G. Batchelder.

Touring—C. A. Post, K. G. Roebling, H. B. Cook.

It is probable that John W. Griggs, former governor of New Jersey, and more recently United States Attorney-General, will have charge of the suit that is to be brought next November to test the constitutionality of the Frelinghuysen law.

ATLANTIC CITY CLUB HELPS PRESERVE LAW.

ATLANTIC CITY, N. J., Aug. 3.—The feeling of soreness anent the "copping of a good thing" by the Atlantic City Automobile Club's yellow-flag contingent still exists among the energetic country constables and coin-hungry magistrates of Atlantic county. And the yellow-flaggers have not been arrested, either, as the authorities threatened when they made their first appearance last week. The A. C. A. C. officials point out to the county officials that the flaggers are merely to prevent infractions of the law; not to prevent arrests.

All week long each trap on every road leading into this city has been "tipped off" to the incoming autoists, and a more sedate set of drivers of long, low, rakish craft never ambled into the city by the sea. True, the scheme is costing the automobile club a little money; but as the bonifaces are helping some and the expressions of satisfaction from motor visitors over the condition of things are numerous, the club's officials feel amply repaid. The latter came out with the statement this week that they were quite as anxious to stop illegal speeding as were the county officials, and were prepared to arrest and prosecute offenders as well. In the face of such an announcement the county officials haven't a leg to stand on, and the yellow-flaggers will continue to work unmolested till the end of the season.

LOUISVILLE CLUB TO INVITE HOTCHKISS.

LOUISVILLE, Ky., Aug. 3.—The July quarterly club meeting of the Louisville Automobile Club was held at Bruen's Garden, and proved a most enjoyable affair. Owing to the absence of the president and vice-president from the city, ex-President George H. Wilson was made chairman. It was decided to invite President Hotchkiss, of the American Automobile Association, to be the club's guest during the holding of the proposed race meet this fall, at which time the club is to give a banquet. Among other items of business transacted, committees on tire protection, racing and highways were appointed. The first consists of R. O. Bruer, George H. Laib and Benjamin B. Watts, while J. M. Chatterson, Ira S. Barnett, Dr. F. S. Clark, Walter I. Kohn and Hubert Levy will look after racing, and Hubert Levy, Dr. Leavell and Prince Wells will constitute the highway committee, the first member named being the chairman of his respective committee.

MORE SIGNBOARDS FOR SYRACUSE ROADS.

SYRACUSE, N. Y., Aug. 3.—Forman Wilkinson, the secretary of the Automobile Club of Syracuse, has placed an order for another 75 route and danger signs, and the work of "labelling" this section is proceeding with steadiness and dispatch. The next routes which the club intends to post are those leading from here to Sherburne, Rexford Falls and Richfield Springs. This is a big undertaking for the club single-handed, but the routes are so popular with automobilists that the officers have decided to do it.

Mr. Wilkinson points out to prospective members the advantages of having an organization to fight anti-automobile legislation. During the last session at Albany not less than 21 measures were introduced discriminating against automobiles, and that none of these found passage was due to the efforts of the New York State Automobile Association.

MARYLANDERS DISCOURAGE SPEEDING.

BALTIMORE, Aug. 3.—That the members of the Automobile Club of Maryland are sincere in their determination to discourage speeding in this city and State was demonstrated by their prompt action at the last meeting, when they passed a resolution condemning the race between an automobile and an airship,

which was one of the attractions at an amusement park. The automobile which called forth the action of the club belonged to Isidor Wolf, and was of 60 horsepower. The race was from the park in question to the City Hall and return. The members of the club say that such contests are injurious to automobilists in general and that they will try to have them stopped.

ACTIVITIES OF THE MINNEAPOLIS CLUB.

MINNEAPOLIS, MINN., Aug. 1.—The annual outing for the orphans of Minneapolis last Tuesday was the most successful event of the kind ever held here. Over 50 automobiles were provided, and the 200 children and 50 nurses were given a complete tour of the cities and parks of Minneapolis and St. Paul. After dinner and games at the Country Club there was a long drive to Minnehaha Falls and Fort Snelling.

The Minneapolis Automobile Club will decide this week whether or not it will go ahead with its plans for a floral parade during the week of the Minnesota State fair. The club members and the business men of the city are in favor of the parade, but the State fair officials have protested against it because it would draw the evening crowds away from the fair grounds. The relations between the two boards are rather strained at present on account of a deficit at last year's race meet, which the fair managers refused to make good.

FLORIDA AUTOMOBILISTS FORM A CLUB.

TAMPA, FLA., July 30.—A large number of auto enthusiasts of this city met one evening last week at the Board of Trade rooms and formed a temporary organization. T. E. Bryan was elected

chairman and J. J. French secretary. While the club is to be known as the Tampa Automobile Club, its membership will not be restricted to residents of the city, but every owner of an automobile in Hillsborough county will be urged to join. Plans for a permanent organization were discussed, and a date set for another meeting, when it is hoped every auto owner in the vicinity will be present. The club's slogan is "Good Roads."

ECONOMY CONTEST AT HARRISBURG, PA.

HARRISBURG, PA., Aug. 1.—Many entries are expected in the economy contest which will be held by the Motor Club of Harrisburg on Saturday, August 15. The contest committee has not definitely decided on the course, but a hill may be included, in order to catch any cars which adjust their carburetors too finely to permit them to do any climbing on the high gear. One of the features of the contest will be a class for electrics. Valuable prizes will be given to the winners in each of the eight classes.

A. C. OF HARTFORD GROWING RAPIDLY.

HARTFORD, CONN., Aug. 1.—The membership of the Automobile Club of Hartford has now reached the 300 mark and more are on the waiting list. The annual hill-climb is the next event scheduled and the club expects to make it an even greater success than that of last year. Everett J. Lake, a prominent member of the club, has received the Republican nomination for governor. The Lake Club has been formed to support him, composed largely of his fellow-members of the Automobile Club. His election appears to be practically assured.

THE DEATH OF A FAMOUS FRENCH MAKER

PARIS, July 30.—A link with the past has been broken by the death of Louis René Panhard, one of the founders of the Panhard-Levassor Company, which took place at La Bourboule, where the deceased was undergoing a course of treatment. M. Panhard, who was in his sixty-seventh year, had been in failing health for some time, and although retaining a seat on the board of directors of his company took very little active part in the management. The last two years of his life had largely been spent at the small town of Thiais, of which M. Panhard was mayor.

It was in 1883 that the old-established firm of Perin, Panhard & Cie. became Panhard & Levassor, M. Perin having died and Levassor, up to that time one of the most important engineers, being elected as partner. The firm was then established in the Avenue d'Ivry, Paris, on the site of the present Panhard-Levassor factory, and was engaged in the manufacture of band saws and woodworking machinery. In 1889, M. Sarrasin, the holder of the French patents for the Daimler engine, requested the Panhard-Levassor firm to build him a motor according to plans which he supplied. Panhard agreed, the actual work being placed in the hands of his partner, Levassor. The same year Sarrasin died, his widow secured the patents, but, knowing nothing of mechanics, engaged Levassor as her engineer and took him with her to Germany to arrange the formalities attendant upon the dissolution of the German syndicate. On their return Madame Sarrasin was engaged to be married to Levassor, and it was in this way that the Daimler patents entered the Panhard-Levassor factory.

A small portion of the workshop was set aside for the construction of horseless carriages, eight men being employed on a quadricycle of one and three-quarter horsepower. After nearly three years' labor the little high-wheeled, ugly-looking buggy was able, towards the end of 1892, to run from the factory to the Pont du Jour and back, a total distance of about six miles, without a stop. It was the first success, and also the occasion of the sale of the first automobile the world had known, the buyer being M. Verlinde, a manufacturer at Lille.

Panhard and Levassor kissed one another; the former proposed to build a special factory; the latter replied "You are mad." The factory was built, it produced the car which won the world's first automobile race from Paris to Rouen in July, 1894; and a year later was victorious in the Paris-Bordeaux and return race with a 4-horsepower motor driven by Levassor. In 1896 the firm took part in the Paris-Marseilles-Paris race, during which Levassor overturned his car and received injuries which caused his death the following March, at a time when all ill-effects appeared to have been overcome. The firm was then converted into the Société des Anciens Etablissements Panhard et Levassor, with a capital of \$1,000,000, which was subscribed by several members of the firm and their friends.

While continuing the manufacture of woodworking machinery, which is even now a branch of the firm's activities, the Avenue d'Ivry factories were considerably extended, and an era of success was entered upon which is without parallel in the history of the automobile industry. In the course of a few years the whole of the Avenue d'Ivry factory, comprising the ground, buildings and machinery, has been paid off, and is put down on the balance sheet at a franc. It is declared that if the manufacture of cars were stopped there is still a reserve fund to pay the shareholders a perpetual five per cent. dividend.

It is interesting to note that what is known as the Panhard car owed very little to Louis René Panhard, most of the early experimental work being done by his partner Levassor. Although Panhard was always a moving spirit in the conduct of the firm, he was not, even after the death of his partner, responsible for various mechanical improvements which kept the firm in a leading position for a number of years, and which have tended to give it a world-famed position.

The funeral ceremony of the late M. Panhard took place at the Madeleine Church, Paris, and was attended by practically all the French constructors, leading members of the Automobile Club of France and by a strong delegation from the factory. M. Panhard was an officer of the Legion d'Honneur and a chevalier of the Merite Agricole.



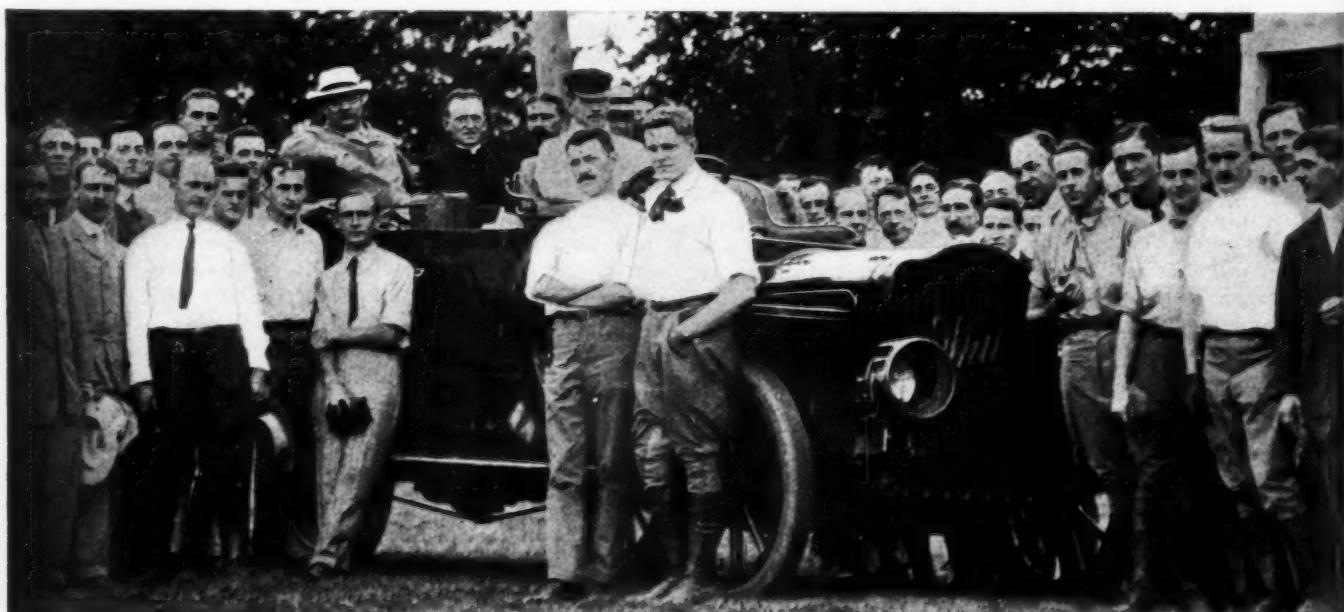
Miss Alice Potter and Party, of Elgin, Ill., in Their Haynes Car.

A WOMAN'S LONG-DISTANCE TOUR.

Miss Alice Potter, of Elgin, Ill., arrived in New York July 29 with her three friends, Mrs. Ada Dangerfield, Misses Elizabeth Forrest and Elizabeth Hunt, having completed the first half of her Elgin-New York-Elgin tour in just nine days. Miss Potter, who drives a 30-horsepower Haynes, had put some 15,000 miles to her credit before starting, all with a perfect score. She has never yet taken a mechanic with her on her tours, and personally superintends any work that is done upon her car. The party tours in leisurely fashion, enjoying the pleasures and sights along the way and stopping whenever and wherever the fancy takes them; all thoughts of records and averages are banished. As it is still quite unusual for ladies to take such a long tour in an automobile unaccompanied by any of the sterner sex for use in case of emergency, the different clubs took great interest in it. At Tarrytown they were met by Manager Heddington of the Haynes New York branch and escorted into the city.

PRESIDENT ROOSEVELT NOW VISITS IN AUTO.

The nation's chief executive has now come to realize the convenience and dispatch afforded by the power-driven vehicle, and is no longer loath to make use of an automobile whenever the opportunity affords. The photograph shows him in one of the government White Steamers on his recent visit to the encampment of Squadron C of the State Militia, at Huntington, L. I.



President Roosevelt in a White Steamer on His Visit to the Encampment of Squadron C of the State Militia.

STODDARD-DAYTON AGENTS CONGREGATE.

DAYTON, O., Aug. 1.—This city has always been recognized as the home of sales and manufacturing organizations, and that perfect organization is the watchword of the Dayton Motor Car Co. was exemplified at the second annual convention of Stoddard-Dayton agents, July 29, 30 and 31. This meeting was attended by about 80 agents, who came from the Atlantic to the Pacific, and from Canada to Texas.

Wednesday was devoted to the inspection of the '09 models. These were on exhibition on the seventh floor of the new building, and embraced twenty-three types of bodies on four chassis, together with a display of all parts of the various motors, transmissions, axles in various stages of manufacture, from the rough steel to the finished product. A sectionized motor was used to show the complete lubricating system. This motor, which was electrically driven, had a glass covering over the cam gears and the same over the two rear cylinder openings on top of the crankcase, an electric light in the crankcase showing the absence of splash and the uniformity of the oil reaching the wrist pin and thence to the cylinder walls, as well as the constant lubrication of the cam gears. The chassis shows improvements in many details, including the strengthening of some parts and an increase in the wheelbase. The gear lever is now placed outside the frame on a special dust-proof quadrant, and an accelerator has been added to the throttle system.

The inspection of the models was concluded Wednesday evening by a Dutch supper at the Hofbrau.

Thursday was devoted to a thorough discussion of trade and selling conditions and the accessories equipment of the '09 cars. On Thursday evening, at a banquet in the Dayton Club, C. G. Stoddard acted as toastmaster, and the following toasts were proposed and responded to: "The Future of the Industry," by R. Y. Houk; "Observations of the Public," by J. M. Cox; and "As You See Them and as They Are," by F. A. Bader.

On Friday morning repairs, advertising and miscellaneous matters were talked over. At a picnic held on Friday afternoon at Wise's Camp the contests were all entered into with enthusiasm by the entire force of agents. The challenge cup was won by Mr. Sears.

Excitement was aroused Friday morning by the arrival of the two Hower trophy cars, Nos. 107 and 112. These cars, which were withdrawn from the contest at Pittsburgh, were driven to Dayton in time to be inspected by the several agents, who made favorable comments on the first-class condition of the much-driven cars, which might well have been expected to show some sign of what they had gone through in the tour.

BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

The Standard Horn Mfg. Co., of New York City, has been incorporated with a capital stock of \$1,800, and will manufacture automobile horns, etc.

An automobile stage line is being operated by H. F. Mitchener and Company between Selma and Smithfield, Johnston county, N. C. One large car is in commission and makes the trip in twenty minutes.

The Renault Frères Selling Branch, Inc., of New York, has just been organized as a corporation with a capital of \$100,000. The incorporators are F. Renault and C. Richardière, France, and Paul Lacroix, of New York.

W. H. Van Dervoort, president of the Moline Automobile Company, feels that his company was extremely unfortunate in having all its eggs in one basket in the recent Glidden Tour, and says that there will be a team of three Molines entered next year.

Figures compiled by an Akron, O., rubber manufacturer show that the output of the rubber factories of that city last year equaled \$33,000,000, and about one-third of that was in rubber tires. The capital invested amounts to \$23,000,000, and the annual outlay for labor is \$9,000,000.

W. Smalley Daniels, manufacturers' agent, representing several lines of motor requisites, has removed his office from the T. Alton Bemus Company, 358 Atlantic avenue, Boston, to larger quarters in the Motor Mart, Room 22, Park Square, that city.

A story comes from Logansport, Ind., to the effect that the Western Motor Works of that city, makers of the Rutenber engines, has received an order for \$100,000 worth of engines, with the clause that in event of the election of Bryan the buyer has the privilege of cancelling the order. Although no decision has yet been made, the order will probably be declined.

J. V. Thomas, manager of the Weed Garage, Toledo, O., has gathered a lot of useful touring information in a little route book which he is sending out. Routes are carefully described and mapped between Toledo and Chicago, Buffalo, New York, Columbus, Cincinnati, Indianapolis and Detroit. The booklet conveys the compliments of the Weed Garage and the Boody House.

Ground has been broken for the factory of the newly-organized Velie Motor Vehicle Company, of Moline, Ill. The company will manufacture high-wheeled automobiles, designed to meet the growing demand for such vehicles among farmers, but the usual made-over buggy design will be avoided. The new building will be 80x200 feet, three stories in height, and will be constructed of reinforced concrete.

It is generally admitted that a manufacturer's demonstrating car receives pretty hard usage, and when, in addition to this, it is used as the general errand car from the factory, it gives the machine as severe a try-out as is conceivable. The Hess-Bright Manufacturing Company, Philadelphia, Pa., have just received a set of their ball-bearings taken from a Knox car so used for over 50,000 miles. Only two bearings needed refilling with slightly larger balls, the others being as good as the day they were put in.

For the coming year, the Maxwell-Briscoe Motor Company, Tarrytown, N. Y., has placed a contract for the complete lighting equipment of the 5,000 Maxwell cars of all types that will constitute its product for 1909 with one concern. This is the Rushmore Dynamo Works of Plainfield, N. J. The order will total close to \$100,000 and is said to be the largest of its kind ever placed. In fact, it is not so long ago that the average accessory manufacturer would have considered this a good figure for his entire year's business.

White Route Book, No. 7, just issued, makes a most important addition to the series of route books published by the White Company for distribution to tourists. As previous issues of the White Route Books contain road directions between New York and Buffalo, there are now available, for the first time, complete and accurate road directions between New York and Chicago. The new book also gives Harrisburg to Cleveland via Pittsburgh, and is attractively illustrated.

The Rushmore Dynamo Works, Plainfield, N. J., announce that the appeal taken by the Manhattan Screw & Stamping Works from the decision rendered against them in the United States Circuit Court for the Southern District of New York, in which an injunction was granted the makers of the Rushmore lamps, has now been decided in their favor. This decision sustains the original order enjoining the defendants from making colorable imitations of the plaintiff's flare front design and appears definitely to settle the rights of the Rushmore company to this design.

This year's A. A. A. Reliability Tour was a harder test of automobile endurance than any that have preceded it, and the fact that 50 per cent. of the cars selected by the manufacturers for this grueling work were equipped with cork insert clutches and brakes, and that over fifty manufacturers are using cork inserts in their 1908 productions, are great testimonials of their value in automobile construction. Their use appears to bear out the claim of the makers, the National Brake and Clutch Company, 16 State street, Boston, that they are an element of insurance against clutch and brake troubles in new cars.

NEW AGENCIES ESTABLISHED.

The Brush agency in Washington, D. C., has been given to the Brush-Nichols Company, which has opened a garage and salesroom in the rear of the city post-office.

L. A. Perkins and C. C. Fletcher, of Rutland, Vt., have formed a partnership under the name of Perkins & Fletcher to handle the Chalmers-Detroit in that city.

The Atlantic Motor Car Company, of 1776 Broadway, New York City, agents for the Stoddard-Dayton, will open a branch in Newark next month. They are now erecting a large building at 2228-2230 Halsey street for that purpose.

W. L. Githens Brothers, of 1328 Michigan avenue, Chicago, have just been appointed agents in that city for the new E-M-F car, which is the product of the Everitt-Metzger-Flanders Company, of Detroit, and the preliminary description of which appeared in these columns recently.

Sidney A. Bean, general sales agent of the Autocoil Company, Jersey City, N. J.,

announces that a branch office will be established in Detroit at 730 Woodward avenue. The new branch will be in charge of W. S. Austin, who has been connected with the engineering departments of the company for several years past.

PERSONAL TRADE MENTION.

J. B. Bartholomew, president of the Bartholomew Company, left Peoria, Ill., July 29, on a business trip through the East. He will stop in Detroit, Boston, New York, Philadelphia and Washington.

Stewart McDonald, vice-president of the Moon Motor Car Company, of St. Louis, is enjoying a six weeks' tour in his Moon car through New York State and Massachusetts.

Winton Sixes will now be handled in Buffalo by Ralph E. Brown, formerly of the Cleveland branch, who has succeeded O. L. Gooden. Mr. Brown is located on Main street, in the heart of auto row.

O. Y. Bartholomew, treasurer of the Bartholomew Company, Peoria, Ill., builders of the Glide cars, is to take charge of the firm's Eastern interests and will shortly establish his headquarters in Philadelphia.

The Perfection Spring Company, of Cleveland, O., announces that it has secured the services of E. F. Bunker, for many years connected with the automobile spring business, as manager for the territory east of Buffalo.

E. J. Moon, of the Moon Motor Car Company, of St. Louis, has returned from a two weeks' vacation tour through the resorts of Wisconsin and Minnesota, and reports the roads to be in very poor condition, generally up to the hubs in mud. This was not as annoying as it might have been, however, as most of his time was spent in pursuit of the finny tribe.

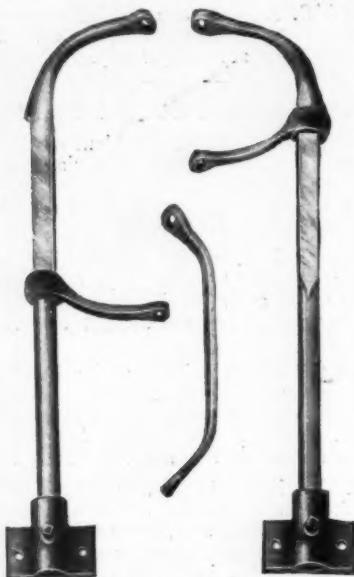
Harry Fosdick, of the Hol-Tan Company, 244 West Forty-ninth street, New York, has just returned from a three weeks' vacation and will immediately undertake the work of handling the new Lancia car imported by C. H. Tangeman. One of these cars is on view at the company's salesrooms in Forty-ninth street and examination shows it to have a number of features which recommend it to discriminating buyers.

C. R. Hough has resigned as general manager of the Pope Automobile Company, of Washington, D. C., to accept a similar position with the Motor Car Company, agents in that city for the Peerless, Thomas, Stevens-Duryea, and Chalmers-Detroit. He succeeds W. C. Hood, who has been selected as sales manager of the Zell Motor Car Company of Baltimore. Elliott P. Hough succeeds his brother as manager of the Pope Automobile Company.

Joseph Grossman, for several years past treasurer and manager of the National Sales Corporation, has resigned from that position, and will embark in the special advertising field, with headquarters in Cleveland. Before assuming management of the National Sales Corporation Mr. Grossman was connected with the Continental Caoutchouc Company, and before that was a member of the firm of Emil Grossman & Bro., publishers of the *Motor Review*, which was purchased by the present owners of THE AUTOMOBILE.

INFORMATION FOR AUTO USERS

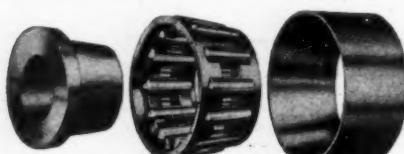
Adjustable Tire Bracket.—A new design of adjustable tire bracket has just been placed on the market by the Bi-Motor Equipment Company, 177 Portland street, Boston, which embodies several features



BI-MOTOR ADJUSTABLE TIRE BRACKETS.

that are entirely original. The attaching bracket takes up less room than is ordinarily the case with this class of fitting, and the brackets themselves are shorter and less bulky, thus making the attachment as a whole an ornament to the car, instead of giving it an awkward appearance. Being adjustable, these brackets can be used to hold one, two or three tires, and the construction is high quality, the straps being made of high-grade leather.

Grant Roller Bearing.—This was the first conical roller bearing to be placed on the market, being the prototype from which many others since introduced have been produced. It has been improved in a number of respects since it was first brought out, and is now being marketed by the Standard Roller Bearing Company, Phila-



STANDARD GRANT ROLLER BEARING.

delphia, Pa. The new bearing has solid rollers, with races and cones made of special steel, with the temper drawn, so that they are very tough and will not chip or break under the most severe service. The cone has an especially wide shoulder, against which the ends of the rollers have a bearing, practically to the center of the roll, the shoulder having the same degree of bevel as the ends of the rolls, the entire thrust being taken in this manner, thus giving great strength and durability. The cage, or retainer, holding the rolls, is made of the same general type as that used so successfully by this company for many years on its standard journal roller bearing. It consists of individual sockets or races, in which the ends of the rolls rest, and is

made of solid steel with the two ends securely riveted together by means of a special electric riveter. The hot riveting makes the cage substantially one piece, and forms the strongest type of retainer that can be devised. It is impossible for it to twist out of shape, and as there are no small journals or pins on the rollers, the bearing is extremely strong and durable.

Albany Grease.—The name "Albany" on a lubricant means that the grease has the backing of many years' experience in its manufacture as the business of making Albany Grease was first undertaken in Albany, N. Y., forty years ago. The little establishment of the pioneer founder of the name, Adam Cook, was outgrown many years ago, and for the past seventeen years the products put out under this brand and which have achieved an enviable reputation the world round have been manufactured in the two large buildings located at 313 West street and 520 Washington street, New York City. The business is carried on by the sons of the originator of Albany grease, the firm being known as Adam Cook's Sons. Albany grease was the first lubricant of its kind to be used in the gear boxes of automobiles in this country, and it has since come into large demand for this purpose, while its use on the car has been extended to every location requiring a solid and reliable lubricant.

Circulation Pump.—New ideas in mechanics are not so frequently in evidence that we can afford to overlook them. In fact, an invention involving a new principle is very much of a novelty in the *au fait* mechanical world. The most recent device of that character to come under our notice is a surprisingly simple little circulation pump, a hasty glance at which would lead one to suppose it was a toy the purpose of which was not apparent by its design, but a critical examination by an expert will soon open his eyes to the fact that there is "something new under the sun." This circulation pump is certainly a wonder in the results it accomplishes; it is composed of an enclosed loose blade pivoted off its center, the pivot being set at the edge of a circular revolving disc. The model on demonstration at the show room of the manufacturer is fitted to standard 1-inch pipe, raises the water about 18 inches from the tap in the tank and discharges a full 1-inch stream when operated slowly by hand. When a 1-2 horsepower motor is attached the stream has such force as to give assurance that the rise would be much higher, if necessary, and the range of action very wide. The result is astonishing, and it is safe to predict that this circulation pump will take

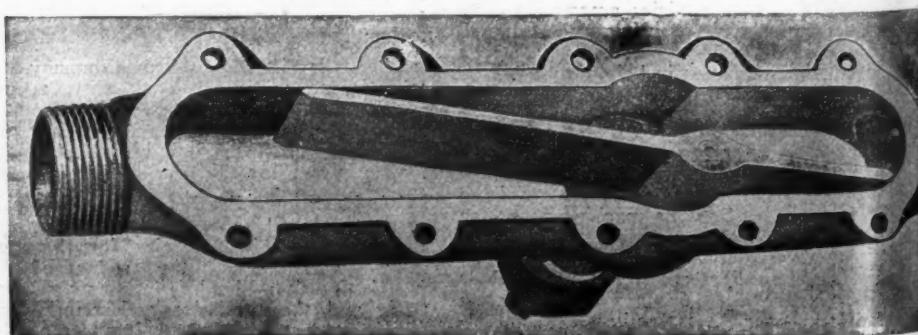
first place in the field, as it has high efficiency, is very simple, admits of the free passage of particles of wood, dirt, etc., cannot shut off the natural flow of water when not in operation; does not create a pressure of more than three pounds, therefore could not cause bursting or leaking of radiators or connections; and its cost is not its least attractive feature. The Circulating Pump Company, 1693 Broadway, New York, is marketing this article.

Lepaute Taximeter.—This taximeter is the one most generally used in all the principal cities of France and England, as well as the colonies. It is being introduced into this country by Ch. Dien, 45 West Thirty-fourth street, New York City, who is the general agent for the United States for this as well as a number of other imported specialties. A number are already in use on taxicabs in the metropolis and other American cities. It is manufactured by Henri Lepaute, Paris, an instrument mak-



LEPAUTE TAXIMETER HANDLED BY CH. DIEN.

ing house established in 1740. The illustration shows the face of the taximeter with the instrument working on tariff one. When the flag is first turned down, an initial fare of 30 or 50 cents is at once registered, according to the rates of the company using the taximeter. During halts, the driver pushes the flag further down, and by so doing releases a clock movement, which registers a charge of 10 cents for every four minutes of waiting. In case of extras for trunks, additional passengers, crossing ferries and the like, the driver registers these himself by turning a knob on the back of the instrument. All the charges are totaled automatically by the instrument and appear through openings in the rear, so that a check may be kept on the driver, and it is impossible for the instrument to be tampered with or put out of action.



SHOWING THE CIRCULATION PUMP COMPLETE, BUT WITH COVER REMOVED.